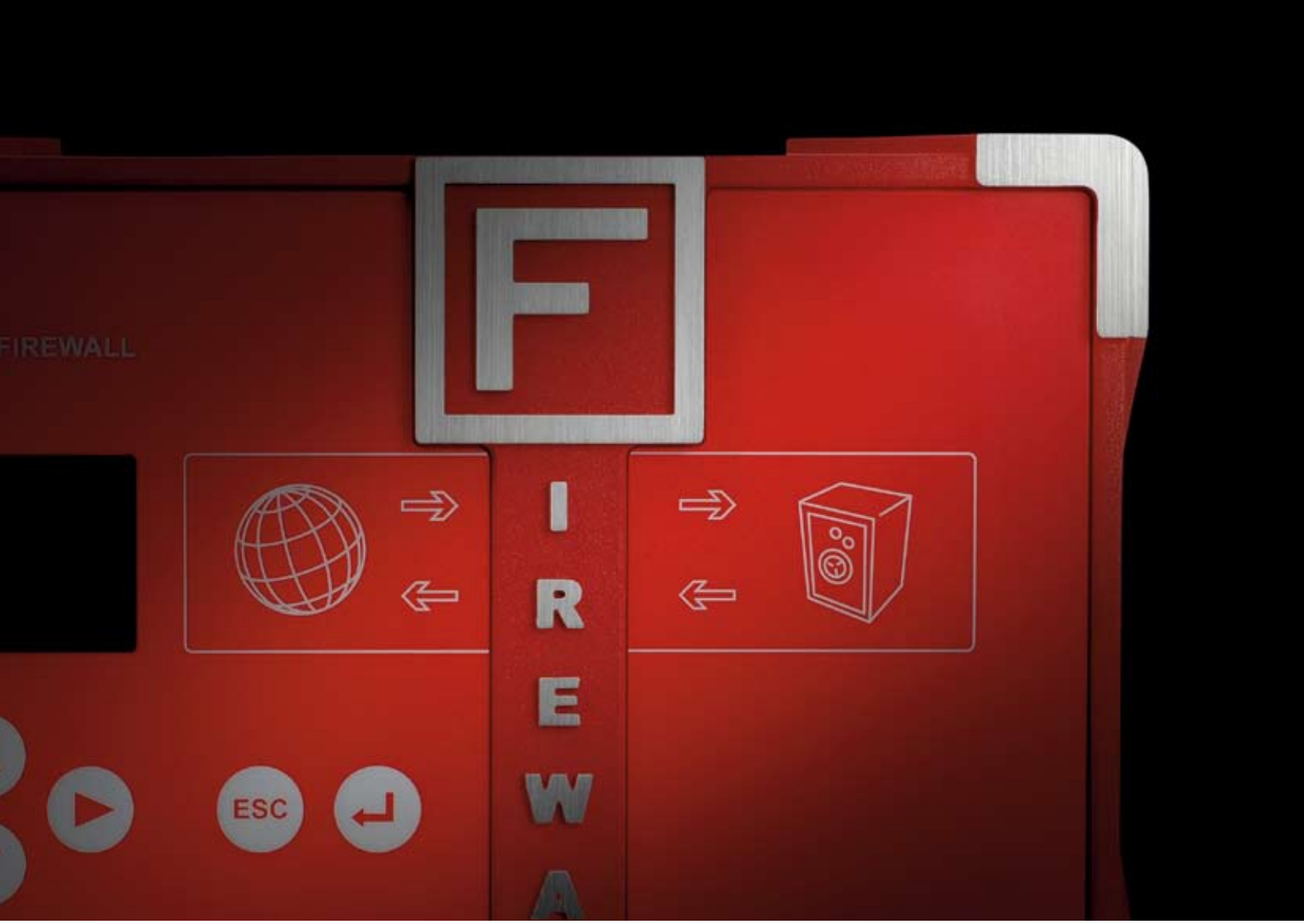


IT Infrastructure
Industrial firewall

adstec
the rugged world of IT®

Secure communication well coordinated

Ethernet is a worldwide communication standard for electronic networks. There it is – one shared language for all components. A breakthrough, which creates unimagined potential, but of course also bears a lot of risks. Communicate specifically, control communication channels and prevent undesired access. Within the enterprise, as well as remotely via the Internet. Security for industrial networks, made in Germany.

IF1000 series

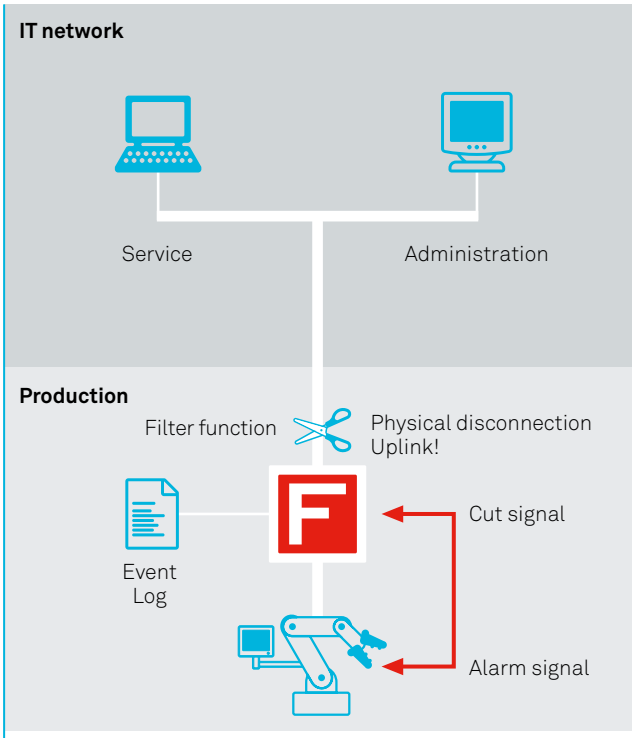
IF1000 series product benefits – hardware

Suitable for use in industry and easy to use **IT security in automation**

- The IF1000 series design stands for robust machine hardware
- Robust magnesium diecast case, redundant power supply and simple controls
- During commissioning, you can read all important details from the display
- The CUT & STOP command can be triggered by a key switch in order to physically disconnect the uplink from the network or to establish a VPN channel

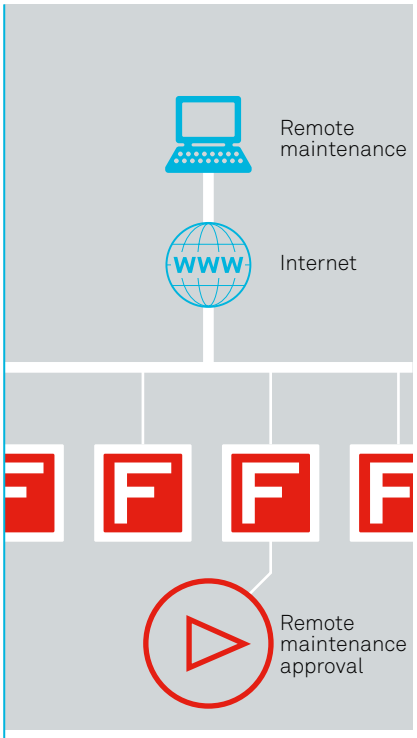
Display and keypad **Important information at a glance**

- The basic configuration can directly be viewed and changed on the firewall without having to connect a notebook
- The display can be locked in order to protect it from unauthorised operation and viewing



CUT & STOP **100% security in critical phases**

- CUT & STOP physically disconnects the LAN IN port from the network
- CUT & STOP can be triggered per software, or by a control input or key switch
- This way, the machine can quickly be disconnected from the network in critical situations, or the other way round, intentionally be connected to the network for remote maintenance



Alarms and key switches **Integration in automation concepts**

- The IF1000 series has a 24V DC input
- The key switch can also be used for temporarily overriding of the CUT & STOP command in order to allow the operator to easily initiate a remote maintenance session
- By using the ModbusTCP protocol, control units are enabled to specifically connect certain machines with the network or to disconnect them

Modem connection **DSL, UMTS, ISDN, GPRS or analogue connection**

- The firewall can directly be connected to an analogue, ISDN or GPRS modem via RS232
- For access via DSL or UMTS, the modem can directly be connected with the LAN IN interface of the IF1000 series device
- The web interface of the firewall is used for configuration, as well as for selecting the connection type

SIM card **Configure plug & play**

- The entire firewall configuration can be stored on a Sim card which you can purchase as an option
- The firewall automatically reads the Sim card contents
- The device is quickly and cost efficiently replaced without using any specialists

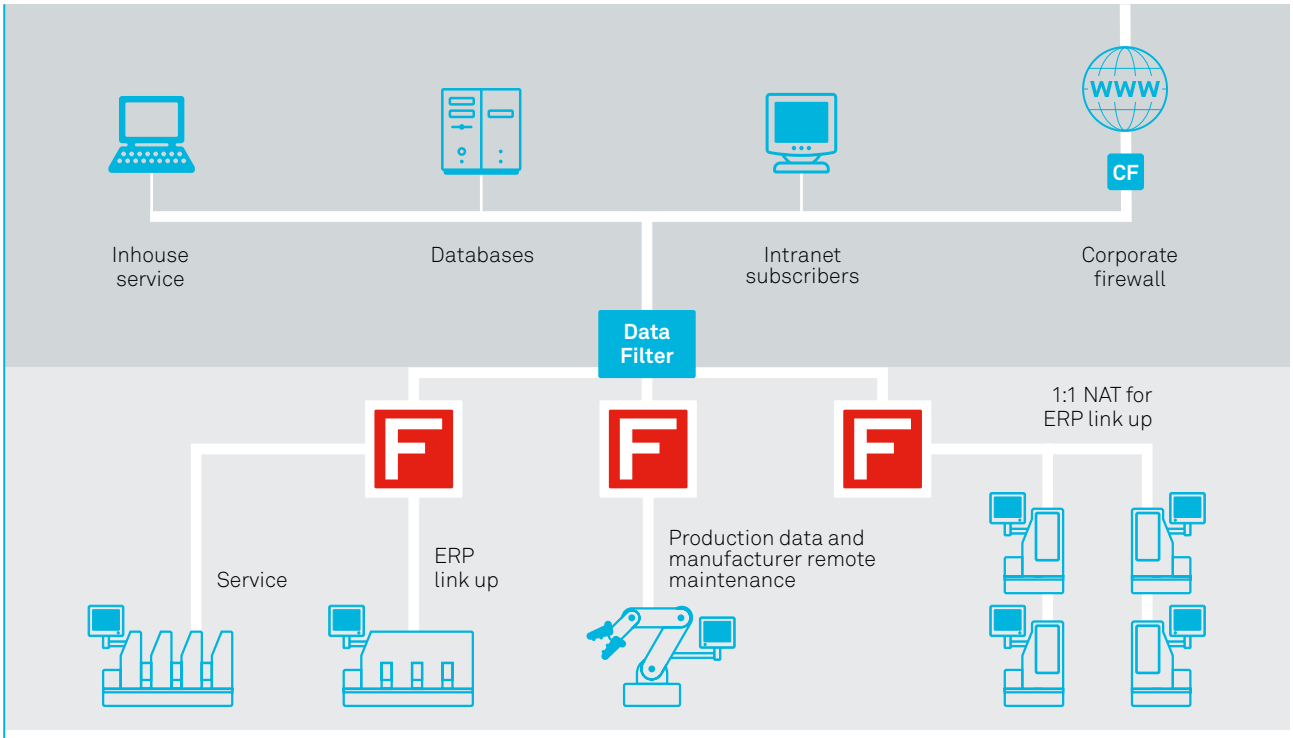
Managed switch with 4 ports **Flexible data routing**

- The switch offers three different modes:
  1. In transparent mode, the IF1000 device has an IP address and can ensure secure operation without any network adaptation (layer 2)
  2. In IP router mode, the switch and the LAN IN interface obtain an IP address each – data packets can be filtered between LAN IN and LAN OUT by stateful inspection
  3. The extended IP router mode provides up to five different IP addresses, each port provides an own subnet, and additionally, an internal subnet can be defined for VPN connections
- Up to four machines can be connected either in the same or in different subnets without any overlaps and IP conflicts
- Each port can individually be disconnected in order to avoid any unauthorised overhearing of data traffic

Options and accessories **For extra security**

- Fibreoptic connection
  Specifically for use in industrial environments with strong EMC interferences and with long distance connections, the LAN IN side can be equipped with a MTRJ fibreoptic connection instead of the RJ45 connection
- NV-RAM
  For locations with particularly strong security requirements, the firewall can be equipped with a power-fail proof NV-RAM; log entries are available even after a power failure, in this case

IF1000 series product benefits – hardware



IF1000 series **BSI compliant machine security**

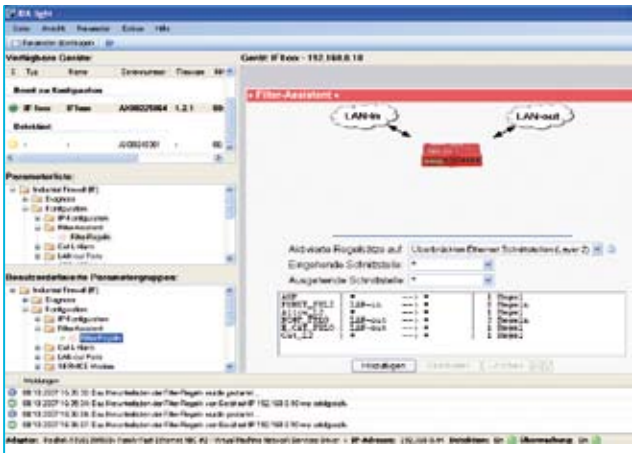
- With its IT Baseline Protection Manual, the Federal Office for Information Security (BSI) has created a catalogue of activities for validation of firewall systems, which had an essential impact on the functions of the ads-tec industrial firewall
- This provides for a reliable operation of this device, as well as for easy integration in existing IT infrastructures

Secure NOW! **Security at the push of a button**
- Automatic rule generation from the current online traffic currently passing through the firewall
- No IT know-how required in order to ensure the basic machine protection
- Rules generated automatically can be edited and adapted

Creating rules manually **Filtering on layer 2 and layer 3**
- Predefined filter rules and rulesets, e.g. for POP3, ModbusTCP or Profinet
- Creation of precisely tailored rules and filters by using the web interface
- Establishment of MAC and IP groups in order to simplify the creation of shared rules for different subscribers

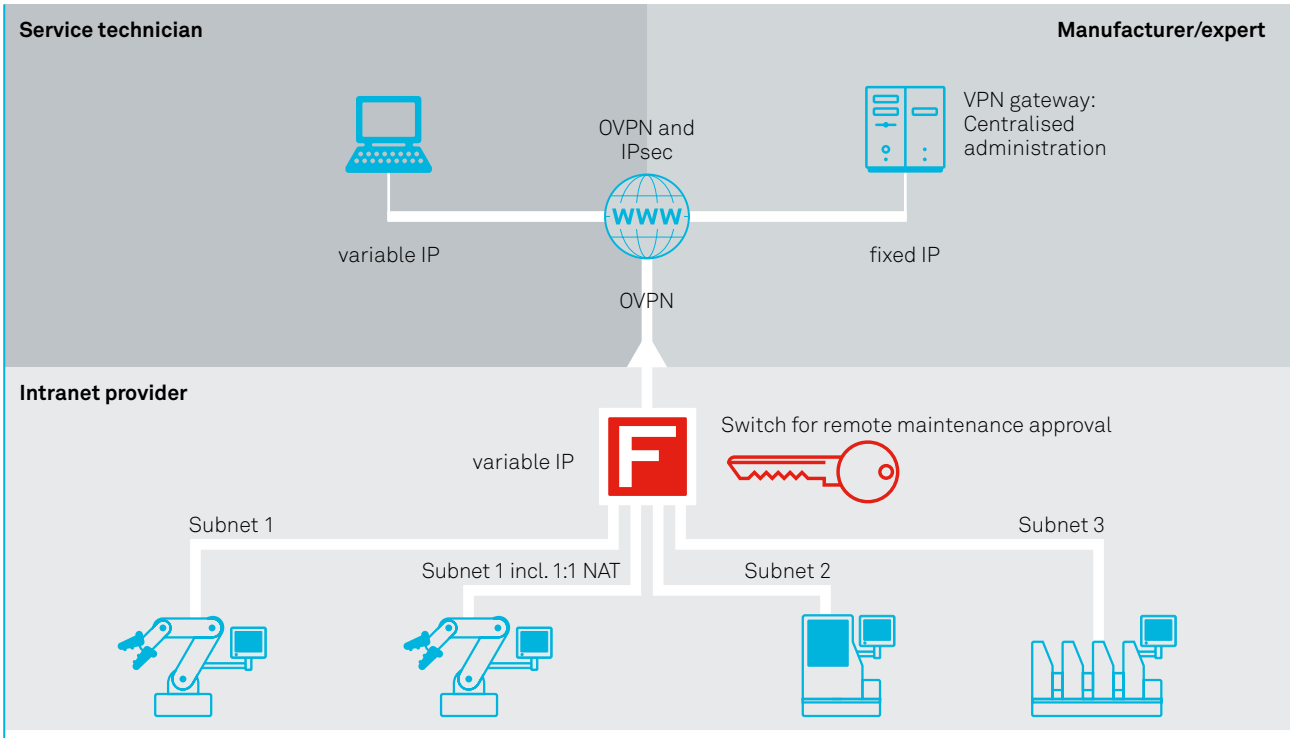
VLAN tagging and prioritisation **Strictly in the right order**
- Machine protocols have preference
- Real time Ethernet applications can easily be used in combination with VLANs

Alarming and event log **Always informed what's going on**
- Simple integration, also for acoustic alarm devices
- Activities can automatically be triggered by the control system
- Password protected event log with local or remote data retrieval
- An email alerting system and a syslog link are additionally implemented



IDA light administration tool **Central administration**
ads-tec provides a central administration tool for management of larger numbers of firewalls within a network, which is used for central administration.
- Automatic detection in corporate networks
- Centralised IP assignment
- Allocation to groups and creation of firewall rules can be copied per drag & drop
- Centralised firmware updating
- IDA light is permanently included in the scope of delivery without any additional costs

IF1000 series product benefits – remote maintenance



Flexible remote maintenance via the Internet **Increased expert availability – decreased travel expenses**

- Remote maintenance with the IF1000 series means a high level of security for both the operating and the manufacturing company
- Based on the "four-eyes-principle", the operator as well as the manufacturer are in full control of access to the machine
- Secure and standardised VPN protocols in connection with certificates and the comprehensive firewall functionality offer maximum protection
- The IF device is brilliantly suited for integration in provider networks
- Worldwide VPN networks can be established and maintained in an easy and flexible way

HIGHLIGHT

Simple rollout **Fast and without any administrative costs**

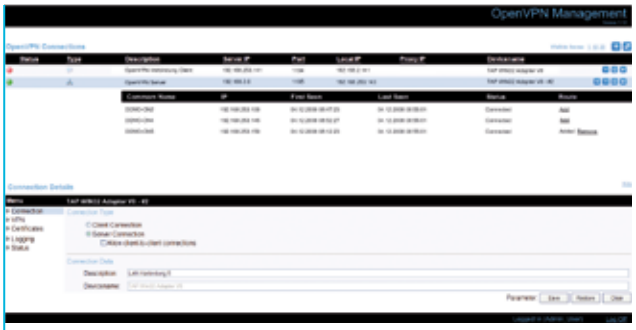
- Administration costs involved in the individual configuration and documentation for the firewalls in typical remote maintenance solutions, in which several systems are distributed all over the world, should not be underestimated
- The IF1000 series provides for all options up to a completely automatic configuration of individual devices by means of automatic certificate enrolment (SCEP) and dynamic IP addresses for VPN adapters

Flexible VPN support **The feature for individualised solutions**

- Support for all well-established methods for connecting machines via the Internet (IPsec/OVPN/L2TP)
- OpenVPN connections can be allocated to individual ports in a flexible way, or be tunnelled via existing proxy servers
- 1:1 NAT for simple establishment of complex networks, since each machine can be operated using the same IP without any conflicts

Remote maintenance from everywhere **Global network**

- The use of existing concepts for connecting the field engineers with the company network can be continued
- The service technician/engineer first connects with the home network, as usual, and then gets into the corresponding machine network via the home network
- As an option, ads-tec offers the web based OpenVPN WebManager for simple administration and controlling of a multitude of OpenVPN connections



OpenVPN WebManager administration tool **Each machine only a mouse click away**

With the OpenVPN WebManager, ads-tec offers a web based solution for setup and administration of a virtually unlimited number of machines by using an OVPN connection. This way, the service technician can connect with the machine by simply using a browser and by a simple mouse click

- No IT knowledge and no training on the job required for service technicians
- No additional costs for VPN connections
- Completely pre-configured and integrated in the home network as a virtual server

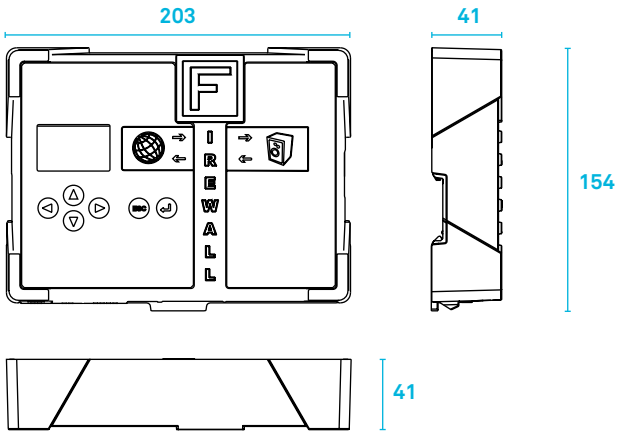
Certificates, encryption and passwords **Security comes first**

- Each VPN tunnel can be strongly encrypted, and is additionally secured by certificates or by a password
- Tunnel establishment can be combined with a key switch in order to introduce the “four-eyes-principle” in remote maintenance – this ensures that unsupervised access is excluded
- Different tunnels can be provided with different access rights; each subscriber gets only access to their part of the system

IF1000 series – technical data

Device data

Hardware	**Ethernet connections**	LAN IN: RJ45 (incl. PoE) As an option: Glass fibre connection LAN OUT: 4 x RJ45, 100BaseTx
	Power supply	2 x 24V DC connection (power and backup) PoE (power over Ethernet) 24V input – for enabling the CUT & STOP function, e.g. with a PLC or per key switch 24V output – Alarm output for PLC or display
	Display	Active monochrome display with 128 x 64 pixels resolution Can be password protected or entirely disabled
	SIM card reader	For storing the configuration
	CPU	Intel® IXP425 533MHz incl. integrated Crypto engine
	Memory	64 MB RAM and 32 MB Flash
	Modem connection	RS232; 9-pin DSUB connector
	Case	Magnesium diecast case
	Installation	DIN rail or wall mount installation
General	**Operating system**	Embedded Linux
	Control and access	Per web interface or using the IDA light centralised management tool
	Languages	German and English
	Environmental temperature	0 °C to +60 °C
	Humidity	10 to 85% without condensation
	Protection class	IP 20
	Dimensions (W x H x D)	203 x 154 x 41 mm
Modem and DSL connection	**Modem**	Connection of an AT compatible modem via standard RS232 DSub-9 connector Configuration as a dial-up point or for dialling in via PPP CHAP and PAP authentication methods are supported Dial-on-demand method with traffic that has the default gateway as the destination
	DSL/UMTS	DSL modem can be connected via any port
	PPPoE	Access data can be configured
	DynDNS	Supports automatic registration
	NAT and NAT Traversal	Yes
VPN	**OpenVPN**	Layer 2 VPN, also supports tunnelling via HTTP-proxy
	IPsec/L2TP Server	Provides a dial-up point for standard Windows® VPN connections
	IPsec standard	Encryption with 1:1 NAT support and data filter
	Simultaneous connections	64 at max
	Encryption algorithms	DES-56, 3DES-168, AES-128, AES-192, AES-256
	Authentication methods	PSK, X.509v3
Firewall	**Cut & Alarm**	Physical disconnection of the LAN IN port controlled by the hardware allows the disconnection of a route of cables by using filter rules if access is made via VPN or modem by using filter rules, as well as the initiation of a VPN connection establishment.
	Firewall in three different modes	In routing mode, filtering for TCP/IP ports, IP addresses and net masks is possible for two interfaces using stateful inspection. In extended routing mode, all five Ethernet interfaces can be operated as individual IP interfaces and filtered. Transparent mode (bridged) directly connects the host adapter with the switch and allows an additional filtering on layer 2 level based on Ethernet features via VLAN, MAC address or protocols.



	Event log/remote syslog	Yes (Event log on NV-RAM as an option)
	Filter wizard	Predefined filter rulesets are used Guides you through the creation of new filter sets
	Max. number of rules	Only restricted by memory size
	Layer 2 filter function	Yes
	Layer 3 filter function	Yes
	Rulesets for individual VPN connections	Yes
	Stateful inspection	Yes
Miscellaneous	**1:1 NAT/network mapping**	In extended routing mode, up to four identical IP subnets can be connected and mapped to a corresponding global address range, even in combination with VPNs
	SNMP	SNMPv1, v2, v3 read/write
	Routing	Static, RIPv2 and OSPF
	External configuration profiles	Yes
	Firmware update server (external)	Yes
	NTP client	Yes, 3 servers can be configured
	DHCP server/DHCP relay	Yes
	VLAN support	Yes
	Bandwidth management	Yes
	STP (spanning tree protocol)	Yes
	Modbus TCP	Yes, with predefined registers
	Client monitoring	Yes (ICMP)
	IDA light	Centralised management tool for configuration and monitoring of all ads-tec firewalls in the network
	Certificate enrolment	Automatic distribution and validity date renewal of device certificates for VPN authentication by using SCEP

Options

Software	**OpenVPN WebManager**	Web based administration of IF1000 OpenVPN connections
Hardware	**NVRAM**	128 KB NVRAM for fail-proof storage of the event log (IF1110)
	Fibreoptic connection	100BASE-FX (MTRJ) LAN IN (IF1200) multi mode fibreoptic connection
	SIM card	The entire configuration is stored on ads-tec memory cards. This allows simple device replacement. The device reads the configuration automatically.

Product portfolio

Tablet PCs

IT Infrastructure

Terminals

Industrial PCs

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the rugged world of IT®

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DZ-HAND-93010-1/B IT Infrastructure Firewall Prospekt E 02-2010

Industrial PCs

PC evolution over several decades implemented to suit industrial needs

adstec

the rugged world of IT®

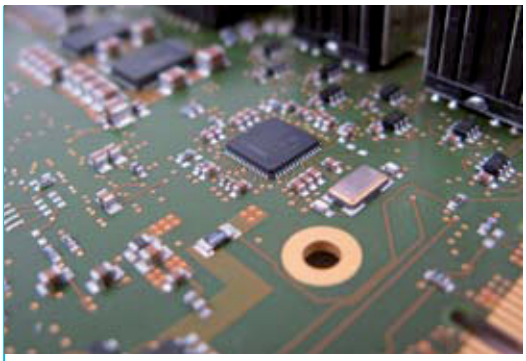
You can rely on it For more than two decades ads-tec has constantly been offering state-of-the-art technology designed to meet industrial requirements. Today all of our products are developed in house, giving us the opportunity to properly act on all stages of development. It is very reassuring for all ads-tec clients that their PC supplier is even capable of adapting CPU boards or changing the BIOS in the source code, if required, over such a long period of time.

OTC5000 series / OPC5000 and OPC6000 series

IPC1000 series

BPC1000 series

adsX technology

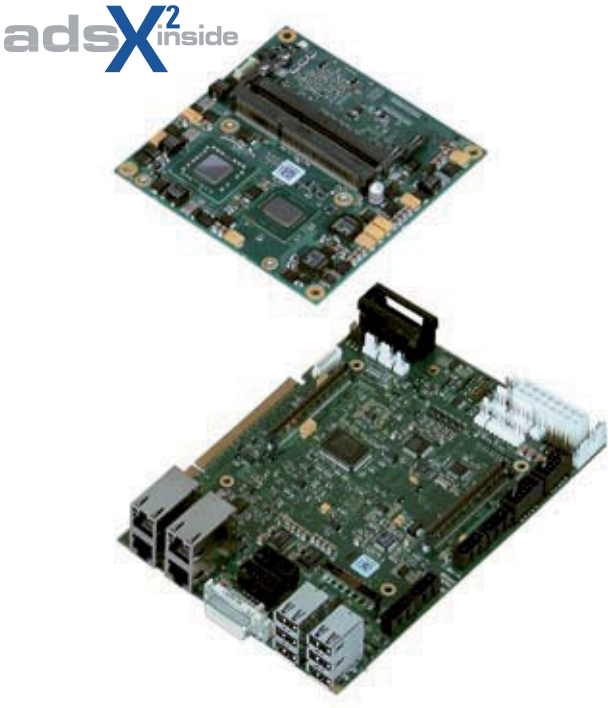


adsX technology **High tech made in Germany**

- Use of components listed on the “long-term roadmaps” of microchip manufacturers in order to ensure unmodified delivery of these systems over several years
- 100 % inhouse development ensures 100 % support
- Soldered processors instead of using sockets

adsX CPU boards **Proven ten thousand times**

- Scalable processor technologies from Intel® Celeron® via Pentium® M to Core™2 Duo
- 32 and 64 bit architectures
- Up to 6 MB CPU cache
- Up to 1066 MHz FrontSideBus
- PCI and PCI Express®
- Graphic controllers up to Intel® GMA X4500, integrated in Intel® GS45, 256 MB of shared memory at max



adsX base boards **Adapted to the optimum**

- Optimised for the required interfaces
- Adapted to the corresponding form factor

Blind Nodes

BPC1000 series **The powerful computer/controller platform**
Ideally suited for IPC solutions with remotely installed monitor, used as control platform or gateway, or for gathering data

- Without fans
- With robust aluminium extrusion profiles – protected and cooled
- From Intel® Celeron® M 800 MHz ULV to Pentium® M 1.4 GHz
- Windows® XP Professional on hard disk
- 2.5" Automotive hard disk
- 2 x Ethernet (10/100MBit) RJ 45;
  1 x Ethernet (10/100/1000MBit) RJ 45

On request:

- Windows® CE 5.0 or Windows® XP embedded as a platform for embedded applications
- 1 x CompactFlash® memory slot (master), external access
- 1 x Fieldbus master and/or 1 x Sercos integrated
- NVRAM for remanent and fail-proof data storage during PLC cycles
- 12 digital inputs and 4 outputs onboard, electrically isolated

IPC1000 series **Compact and versatile**

- Applications from blind node to server
- Realisation of remote control concepts in connection with digital motors from ads-tec
- Without fans
- From Intel® Celeron® 800 MHz ULV to Pentium® M 1.8 GHz
- 2.5" Automotive hard disk, or 1 x CompactFlash® as an alternative memory slot (master) with external access
- COM 1, COM 2, COM 3 (RS232), 3 x USB
- 1 x PS/2 mouse, 1 x PS/2 keyboard, 1 x DVI
- 2 x Ethernet (10/100Mbit) RJ 45
- 1 x PCI slot

Thin Clients and Panel PCs

OTC5000 series **Focused on the essential**

- Perfectly suited for establishing cost optimised terminal and thin client solutions
- Without fans
- From Intel® Celeron® 800 MHz ULV to Pentium® M 1.4 GHz
- High quality industrial touchscreen and integrated ads-tec soft keyboard
- Displays from 12.1" to 17"
- 2.5" Automotive hard disk or alternatively: 1 x CompactFlash® memory slot (master), external access
- COM 1 (RS232), 1 x front USB, 2 x USB
- 1 x PS/2 mouse, 1 x PS/2 keyboard, 1 x DVI-A
- 1 x Ethernet (10/100Mbit) RJ 45

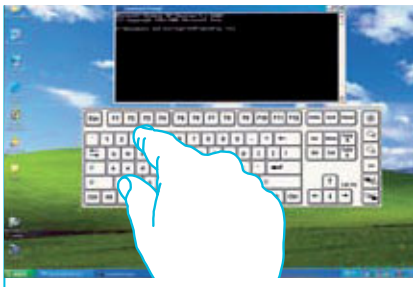
OPC5000 and OPC6000 series **Control and monitoring for experts**

- Industrial PC series for front panel installation
- High quality industrial touchscreen and integrated ads-tec soft keyboard
- Displays from 12.1" to 19"
- From Intel® Celeron® M 800 MHz ULV over Pentium® M 1.8 GHz, up to Core™2 Duo 2.26 GHz
- Windows® XP Professional on hard disk or Windows® CE 5.0, respectively Windows® XP embedded as a platform for embedded applications
- 2.5" Automotive hard disk or 3.5" standard hard disk, or 1 x CompactFlash® slot (depending on the version)
- COM 1, COM 2, COM 3 (RS232), 1 x LPT, 3 x USB
- 1 x PS/2 mouse, 1 x PS/2 keyboard, 1 x DVI-A
- Up to 4 x Ethernet (10/100/1000Mbit) RJ 45, 3 of which are via managed switch
- Up to 3 PCI/ISA slots (shared) and 1 x PCI Express®

Extensions and optional additions

MSD series **Remote control**

- Monitor in enclosed casing from anodised aluminium, ideally suited for use as a remote control station in connection with blind nodes of the IPC1000 series
- 15" display including resistive industrial touchscreen
- Can be connected with any DVI/VGA interface
- Setup via front keys and OSD menu
- Brightness adjustment from the front
- Automatic picture expansion from VGA to full screen
- Installation by using built-in VESA 100 mm mounting holes
- Digital or analogue signal input
- Smooth surfaces can easily be cleaned

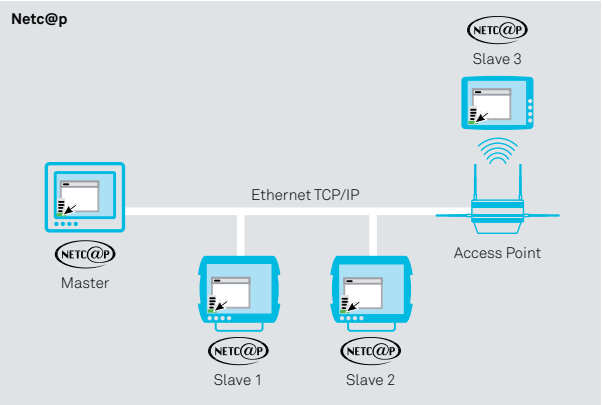


Soft keyboard **Input the easy way**

- The soft keyboard is available as early as during login dialogue
- You can switch between a full keyboard and a representation optimised for terminal emulations
- Size and included functions can simply be adapted depending on the application and requirements; both a numeric block as well as an alphanumeric keyboard can be put on display either individually or in combination
- Automatic storage of most recently used settings when the soft keyboard was shut down
- Different languages and/or matching keyboard layouts, selectable depending on the operating system used
- Additional setup options for colour adaptation or transparent mode
- API interface for controlling the keyboard from a customer application

Netc@p **Being everywhere at the same time**

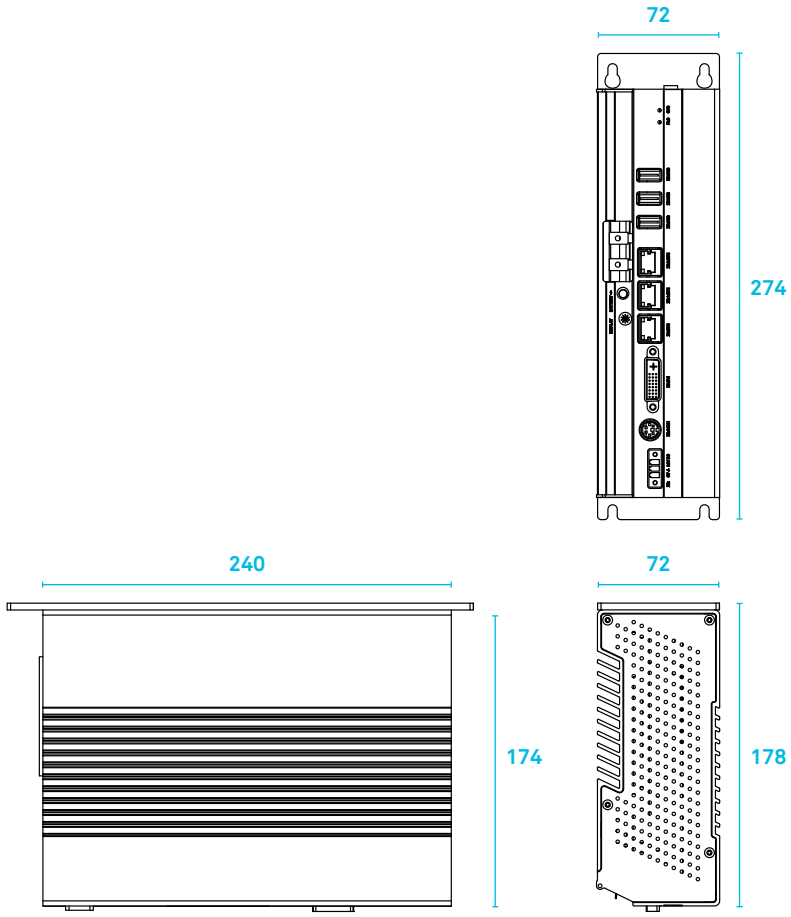
- Distributed multi-control architecture realised by providing keyboard, mouse and monitor signals via TCP/IP
- Secure access through control rights administration
- Comfortable support during commissioning and servicing if a tablet PC is used
- Centralised monitoring of several systems in “Multi slave mode”



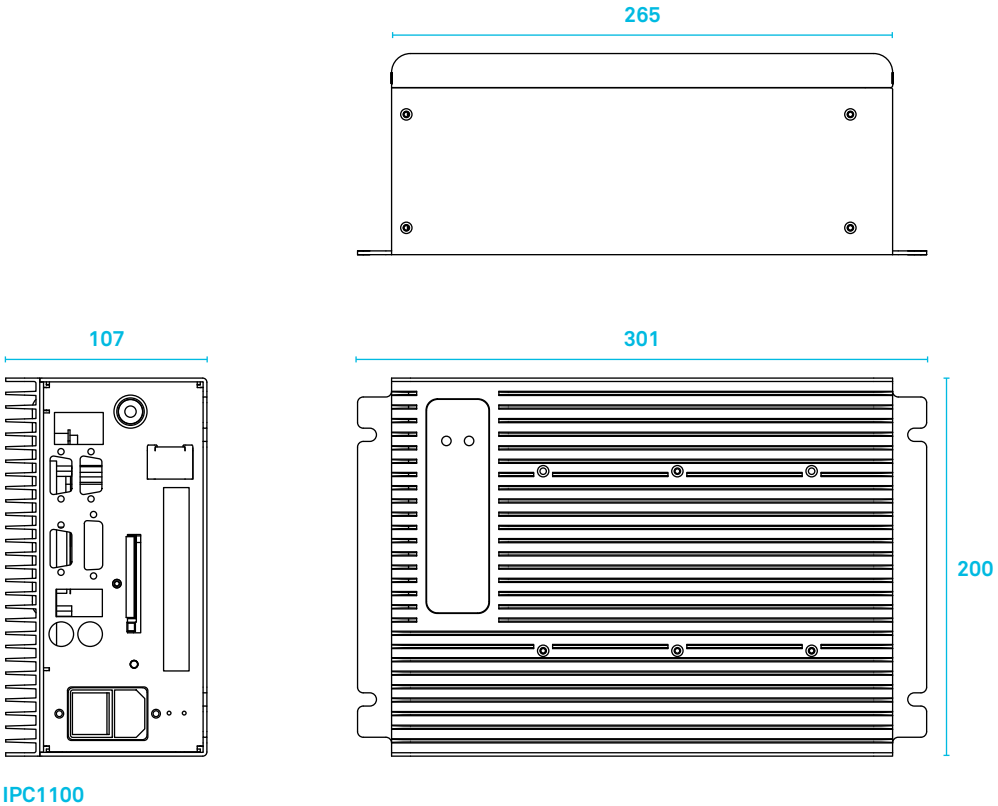
BPC1000 series and IPC1000 series – technical data

Device data

	BPC1000	IPC1100
Processor Intel®	Celeron® M 800 MHz ULV Pentium® M 1.4 GHz	Celeron® M 800 MHz ULV Celeron® M 1.0 GHz ULV Pentium® M 1.6 GHz Pentium® M 1.8 GHz
RAM	512 MB to 2 GB RAM	
Graphic controller	Intel® 855 GME Chipset	
Graphic memory	a maximum of 32 MB shared	a maximum of 64 MB shared
Mass storage device	2,5" automotive hard disk with a minimum of 40 GB (UDMA) Alternative: 1 x CompactFlash® memory slot (master), external access	
Interfaces	COM 1 (mini-DIN, programming interface) 3 x USB 2.0 1 x DVI-I Display resolution switch	COM 1 (RS232) COM 2 (RS232) COM 3 (RS232) 1 x PS/2 mouse 1 x PS/2 keyboard 1 x DVI-I 3 x USB 2.0
Slots		1 x PCI
Network	2 x Ethernet (10/100MBit) RJ 45 1 x Ethernet (10/100/1000Mbit) RJ 45	2 x Ethernet (10/100MBit) RJ 45
Power adapter	24 V DC +/–20 % (19 to 29 V)	100 to 240 V AC, 60 W, ATX
Operating system	Windows® CE 5.0 or Windows® XP embedded as a platform for embedded applications Windows® XP Professional on hard disk	
Protection class	IP 20	
Operating temperature	0 to 55 °C	0 to 45 °C
Dimensions (W x H x D)	72 x 240 x 174 mm 72 x 274 x 178 mm incl. installation bracket	200 x 301 x 107 mm
Vibration resistance	DIN EN 60068-2-6	
Shock resistance	DIN EN 60068-2-27	
Humidity	10 to 85 % without condensation	
Feldbus Optionen	1 x Fieldbus master and/or 1 x Sercos, built-in ex factory 1 x Fieldbus master and/or – NVRAM for remanent and fail-proof data storage during PLC cycles – 12 digital inputs and 4 outputs onboard, electrically isolated	



BPC1000

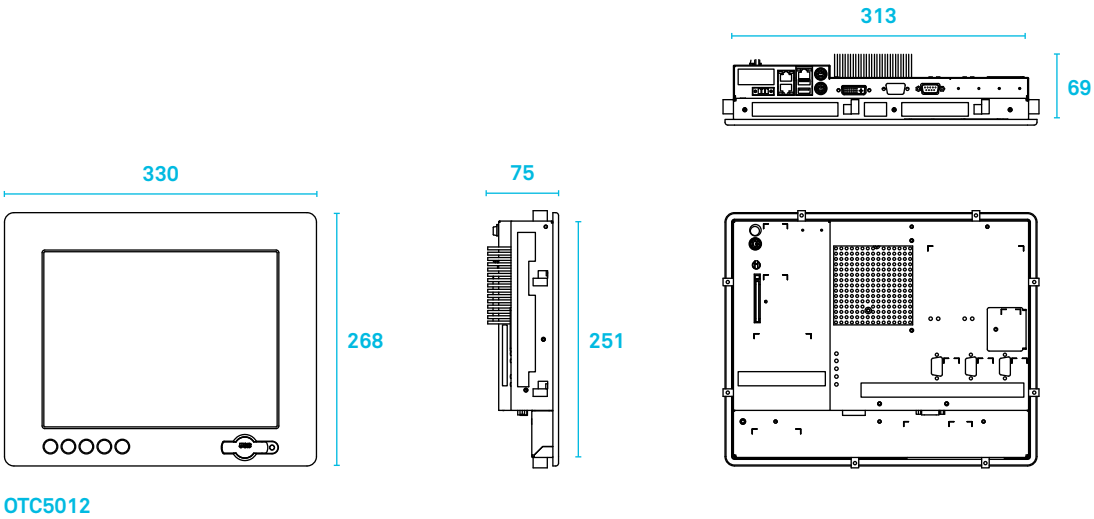


IPC1100

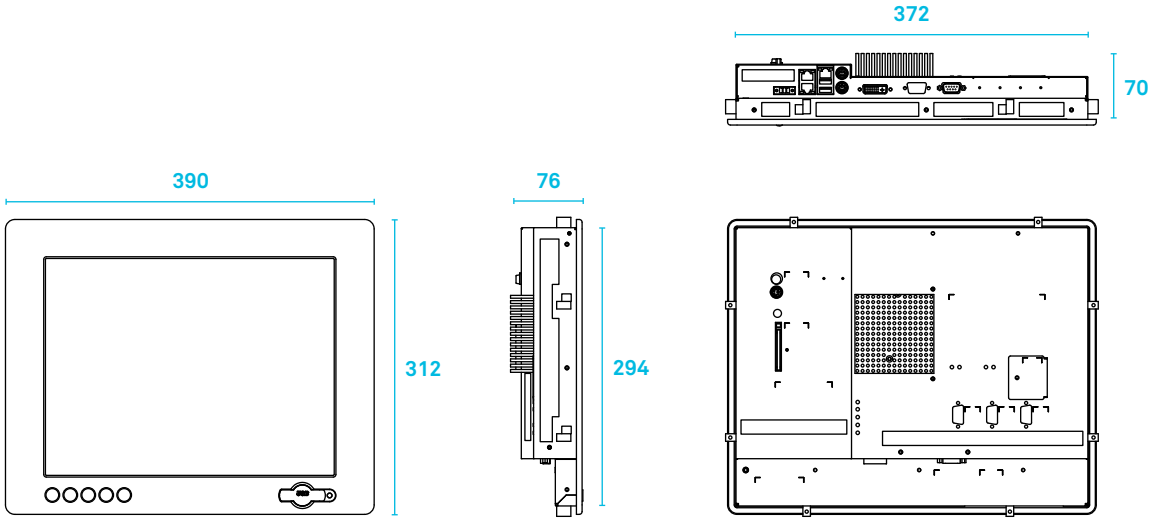
OTC5000 series – technical data

Device data

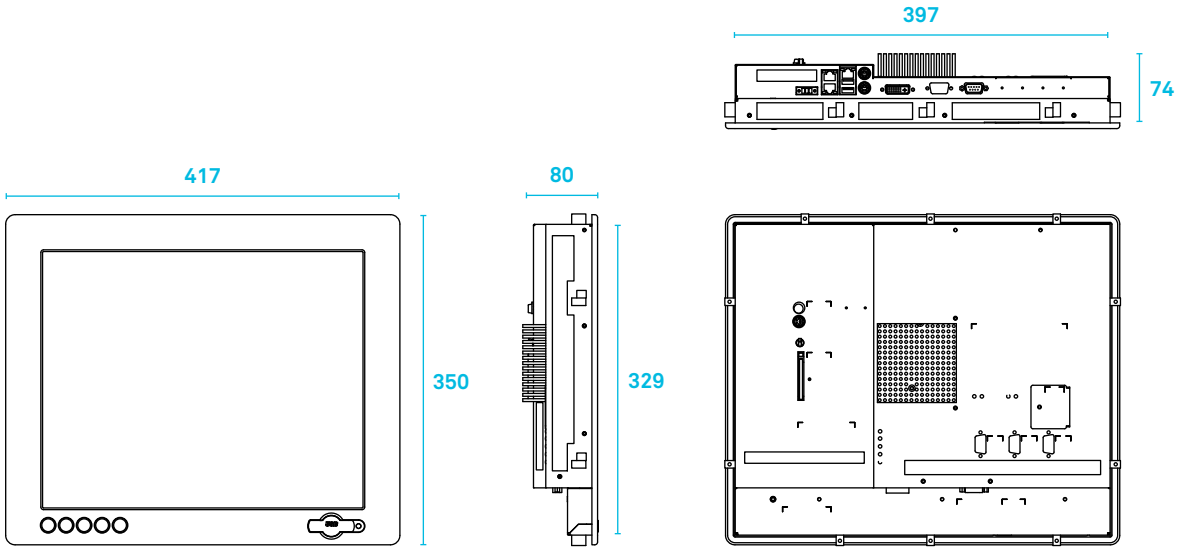
		OTC5012	OTC5015	OTC5017
Display		12.1" TFT	15" TFT	17" TFT
	Resolution	800 x 600 pixels	1024 x 768 pixels	1280 x 1024 pixels
	Represented colours	256k at max	16.1 million at max	16.7 million at max
Touch		Resistive industrial touchscreen		
Processor	Intel®	Celeron® M 800 MHz ULV Celeron® M 1.0 GHz ULV Pentium® M 1.1 GHz		
RAM		512 MB to 2 GB RAM		
Graphic controller		Intel® 855 GME chipset		
Graphic memory		a maximum of 64 MB, shared		
Mass storage device		2,5" automotive hard disk with a minimum of 40 GB (UDMA) Alternative: 1 x CompactFlash® slot		
Interfaces		COM 1 (RS232) PS/2 mouse PS/2 keyboard 1 x DVI-A 2 x USB 2.0		
Network		1 x Ethernet (10/100MBit) RJ 45		
Power adapter		24 V DC +/–20 % (19 to 29 V)		
Operating system		Windows® CE 5.0 or Windows® XP embedded as a platform for thin client applications Windows® XP Professional on hard disk as an open solution		
Protection class		Front: IP 65		
Operating temperature		0 to 45 °C		0 to 40 °C
Dimensions (W x H x D)		330 x 268 x 75 mm	390 x 312 x 76 mm	417 x 350 x 80 mm
Installation recess (W x H)		318 x 256 mm	376 x 299 mm	403 x 334 mm
Vibration resistance		DIN EN 60068-2-6		
Shock resistance		DIN EN 60068-2-27		
Humidity		10 to 85 % without condensation		



OTC5012



OTC5015



OTC5017

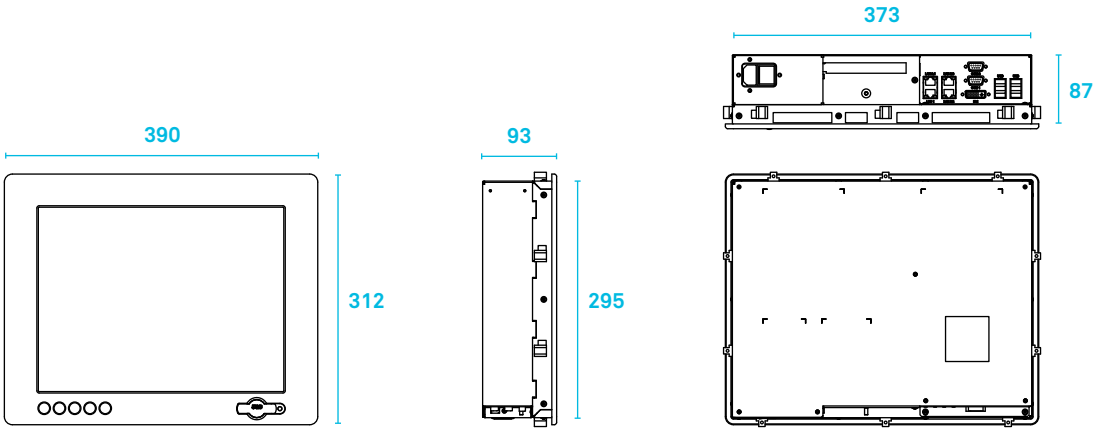
OPC6000 and OPC5000 series – technical data

Device data

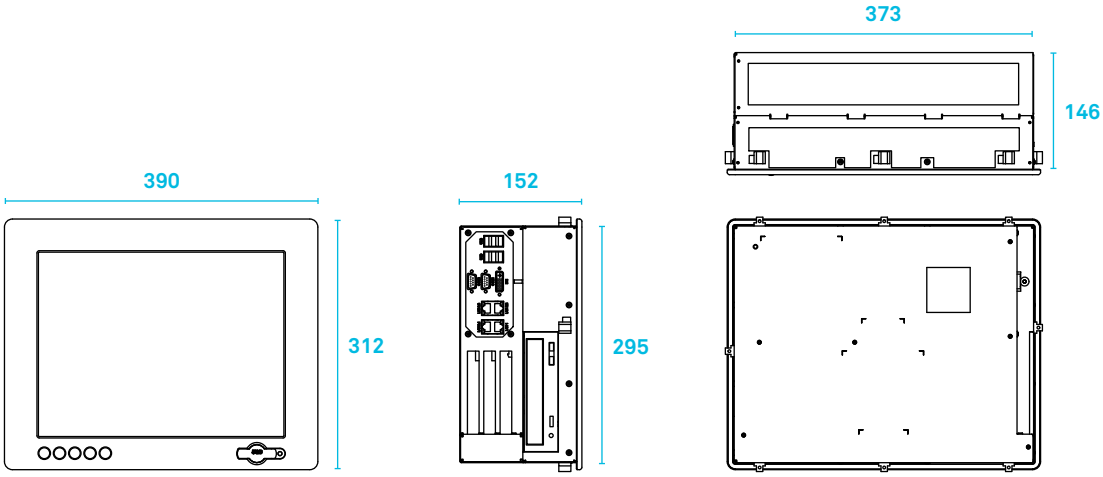
	OPC6115	OPC6315	OPC5112
Display Resolution Represented colours	15" TFT 1024 x 768 pixels 16.1 million at max		12.1" TFT 800 x 600 pixels 256k at max
Touch	Resistive industrial touchscreen		
Processor Intel®	Celeron® 1.2 GHz ULV (Dual Core) Core™2 Duo 2.26 GHz		Celeron® M 800 MHz ULV Celeron® M 1,0 GHz ULV Pentium® 1.4 GHz
RAM	1 GB to 4 GB DDR3 RAM		512 MB to 2 GB DDR RAM
Graphic controller	Intel® GMA X4500 integrated in Intel® GS45		Intel® 855 GME chipset
Graphic memory	a maximum of 256 MB shared		a maximum of 64 MB shared
Mass storage device	2.5" hard disk a min. of 120 GB (SATA)	3.5" hard disk a min. of 160 GB (SATA) DVD burner	2.5" automotive hard disk a min. of 40 GB (UDMA) alternative: 1 x CompactFlash® slot
Interfaces	COM 1 (RS232) COM 2 (RS232) 6 x USB 2.0 1 x DVI-I		COM 1 (RS232) COM 2 (RS232) COM 3 (RS232) 1 x LPT 1 x PS/2 mouse 1 x PS/2 keyboard 1 x DVI-A 3 x USB 2.0
Slots	1 x PCI	2 x PCI 1 x PCI Express® (1 Lane)	1 x PCI/ISA shared
Network	1 x Ethernet (10/100/1000MBit) RJ 45 3 x Ethernet (10/100/1000MBit) RJ 45 via managed switch		2 x Ethernet (10/100MBit) RJ 45
Power adapter	90 to 264 V AC, 150 W, ATX		90 to 132/180 to 264 V AC, 60 W, AT
	As an option: 24 V DC +/–20 % (19 bis 29 V)		
Operating system	Windows® XP Professional on hard disk embedded operating systems on request		
Protection class	Front: IP 65		
Operating temperature	5 to 45 °C		0 to 45 °C
Dimensions (W x H x D)	390 x 312 x 93 mm	390 x 312 x 152 mm	330 x 268 x 94 mm
Installation recess (W x H)	376 x 299 x mm	376 x 299 mm	318 x 256 mm
Vibration resistance	DIN EN 60068-2-6		
Shock resistance	DIN EN 60068-2-27		
Humidity	10 to 85 % without condensation		

Device data

		OPC5115	OPC5117	OPC5315	OPC5319
Display		15" TFT	17" TFT	15" TFT	19" TFT
	Resolution	1024 x 768 pixels	1280 x 1024 pixels	1024 x 768 pixels	1280 x 1024 pixels
	Represented colours	16.1 million at max	16.1 million at max	16.1 million at max	16.1 million at max
Touch		Resistive industrial touchscreen			
Processor	Intel®	Celeron® M 800 MHz ULV Celeron® M 1.0 GHz ULV Pentium® 1.6 GHz Pentium® 1.8 GHz			
RAM		512 MB to 2 GB DDR RAM			
Graphic controller		Intel® 855 GME chipset			
Graphic memory		a maximum of 64 MB shared			
Mass storage device		2,5" automotive hard disk a min. of 40 GB (UDMA) alternative: 1 x CompactFlash® slot		3,5" hard disk a min. of 160 GB (UDMA) 3,5" floppy disk drive, DVD burner	
Interfaces		COM 1 (RS232) COM 2 (RS232) COM 3 (RS232) 1 x LPT 1 x PS/2 mouse 1 x PS/2 keyboard 1 x DVI-A 3 x USB 2.0			
Slots		1 x PCI/ISA shared		2 x PCI/ISA shared 1 x PCI	
Network		2 x Ethernet (10/100MBit) RJ 45			
Power adapter		90 to 260 V AC, 85 W, ATX As an option: 24 V DC +/–20 % (19 to 29 V)		90 to 264 V AC, 150 W, ATX As an option: 24 V DC +/–20 % (19 to 29 V)	
Operating system		Windows® XP Professional on hard disk embedded operating systems on request			
Protection class		Front: IP 65			
Operating temperature		0 to 45 °C		5 to 45 °C	
Dimensions (W x H x D)		390 x 312 x 94 mm	417 x 350 x 94 mm	390 x 312 x 154 mm	457 x 382 x 155 mm
Installation recess (W x H)		376 x 299 mm	403 x 334 mm	376 x 299 mm	443 x 368 mm
Vibration resistance		DIN EN 60068-2-6			
Shock resistance		DIN EN 60068-2-27			
Humidity		10 to 85 % without condensation			



OPC6115



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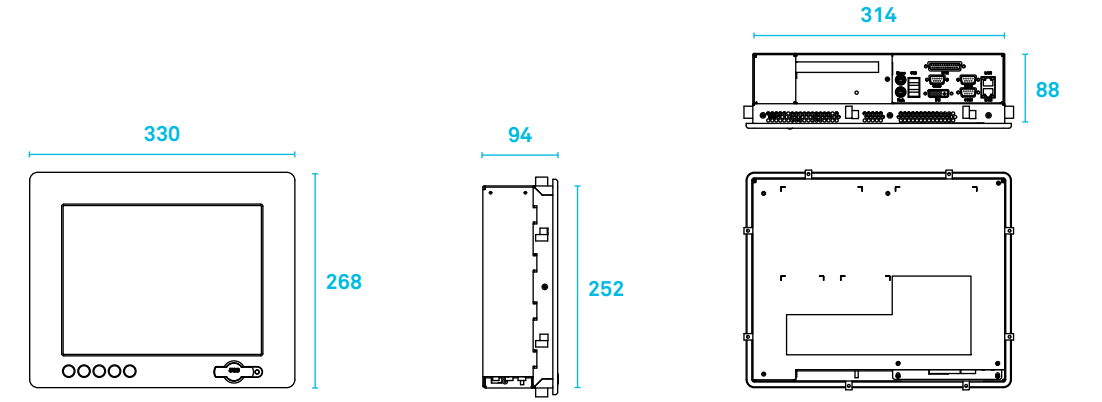

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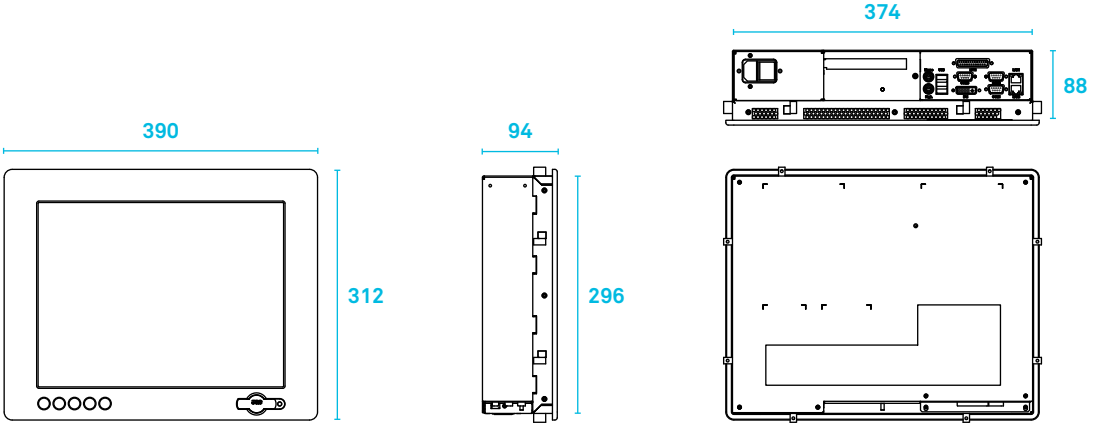
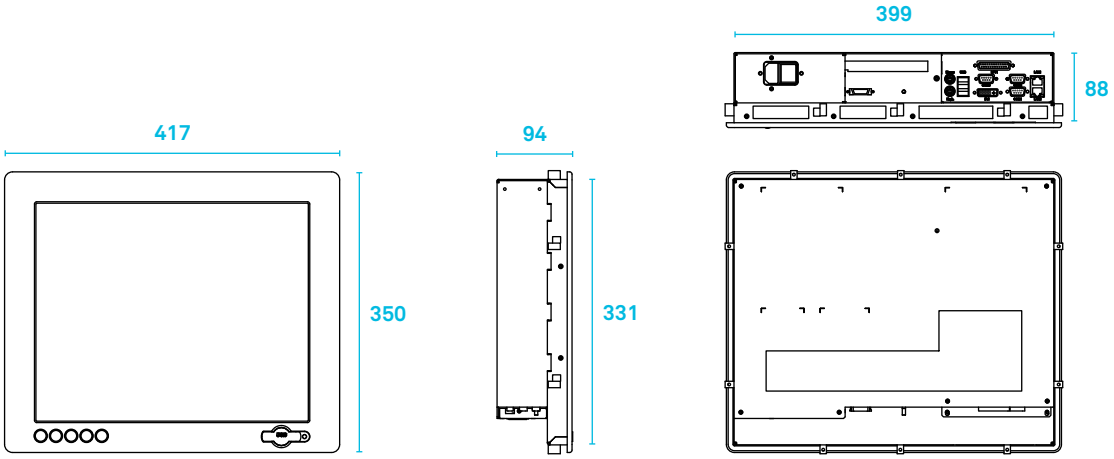
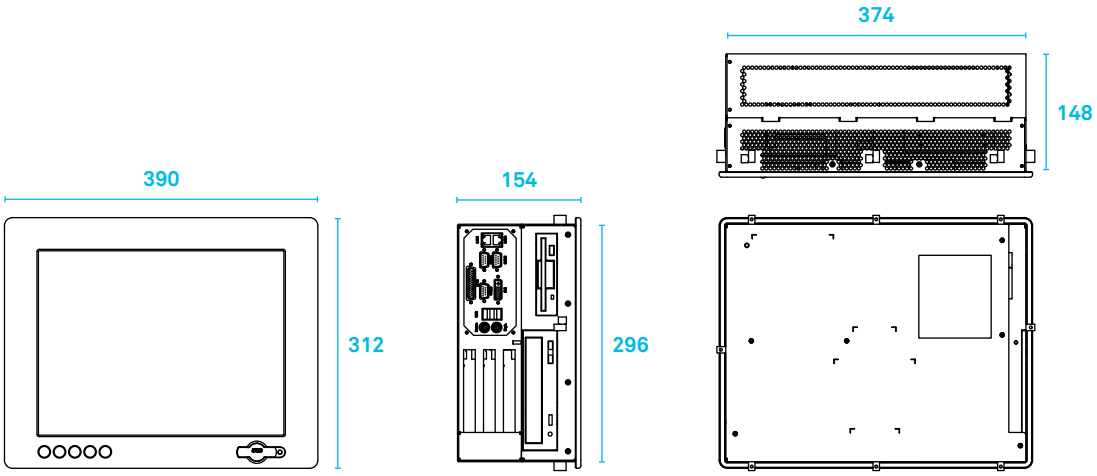


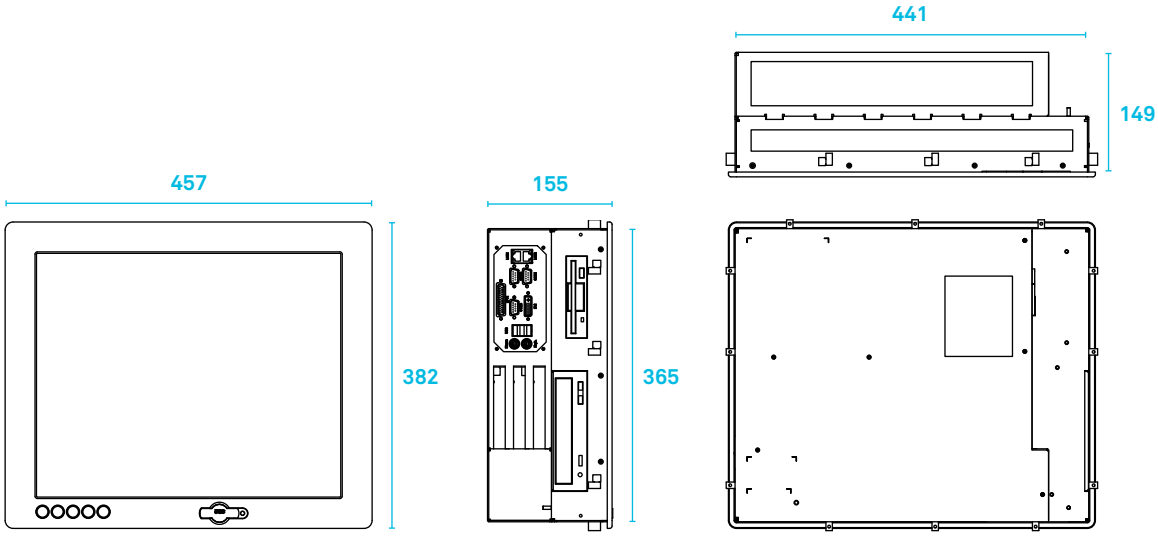
OPC5115



OPC5117



OPC5315



OPC5319

Product portfolio

Tablet PCs

IT Infrastructure

Terminals

Industrial PCs

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the rugged world of IT®

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DZ-HAND-93000-1/B Industrial PCs Prospekt E 02-2010

Terminals
x86 performance in monitor format

adstec

the rugged world of IT®

Terminals – PC compatible, slim, robust and well designed These are the features ads-tec terminals have delivered for several generations. Specifically created for the rough environmental conditions of industrial everyday work, ads-tec terminals reliably work onboard forklift trucks and vehicles, as well as on production lines and machines.

VMT5000 series

VMT6000 series

VMT5000 series

VMT5010

VMT5012

VMT5015

VMT5017

VMT5000 series **Well proven thousands of times**

- Monitor sizes: 10.4", 12.1", 15" and 17" widescreen
- Five front keys for comfortable control
- 5-wire industrial touchscreen
- Brushed aluminium front panel (anodised)
- Robust aluminium diecast case
- adsX Intel® Pentium® M processor platform
- Without fans
- External WLAN antennas
- Front USB (can be disabled by software)
- Ethernet 10/100 RJ 45
- Interface connections well protected underneath a cover
- IP 65
- Complies with requirements acc. to MIL-STD 810F, figure 514.5C (US highway truck transportation)

reddot design award

Focus Know-how Silber 2005

adsX technology **High tech made in Germany**

- Use of components listed on the "long-term roadmaps" of microchip manufacturers
- Many years of system reliability
- 100 % inhouse development ensures 100 % support
- Soldered processors instead of using sockets
- Scalable processor performance based on Intel® Pentium® M platform

adsX inside

VMT6000 series

HIGHLIGHTS

- → **Low power Intel® Atom™**
- → **Dual Ethernet 10/100/1000 Mbit**
- → **Internal antennas**
- → **Simple battery/flash access with VMT6008**

VMT6008

VMT6012

VMT6015

VMT6000 series **Well proven, even further advanced**

- Monitor sizes: 8" widescreen, 12.1" and 15"
- Five front keys for comfortable control
- 5-wire industrial touchscreen
- Front panel from glass fibre reinforced plastic (painted)
- Robust aluminium diecast case
- adsX² Intel® Atom™ processor platform
- Low power design
- Without fans
- Internal WLAN/UMTS*/RFID** antennas
- Front USB (can be disabled by software)
- Double 10/100/1000 RJ 45 Ethernet connection
- Interface connections well protected underneath a cover
- Extended temperature range
- IP 65
- Complies with requirements acc. to EN 60721-3-5 (terrestrial vehicles) Class 5M3 incl. Flash SSD, class 5M2 incl. hard disk
- Complies with requirements acc. to MIL-STD 810F, figure 514.5C (US highway truck transportation)

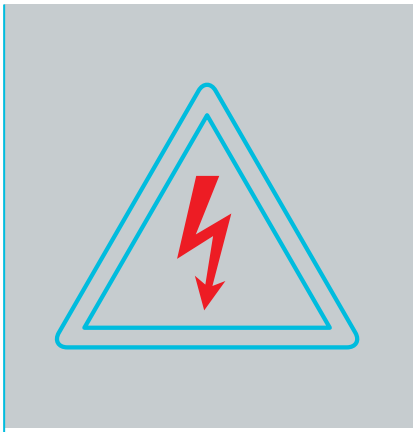
adsX² technology **High tech made in Germany**

- Use of components listed on the "long-term roadmaps" of microchip manufacturers
- Many years of system reliability
- 100 % inhouse development ensures 100 % support
- Intel® Atom™ processor technology
- Soldered processors instead of using sockets

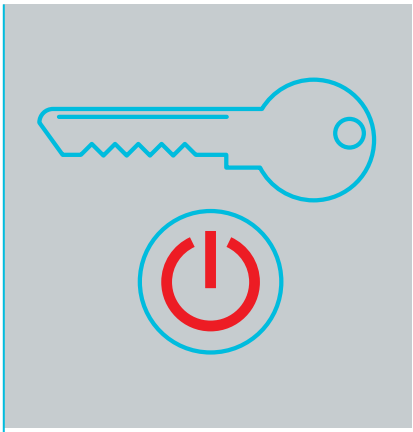
adsX² inside

* VMT6008 only ** VMT6012 and VMT6015 only

VMT product benefits

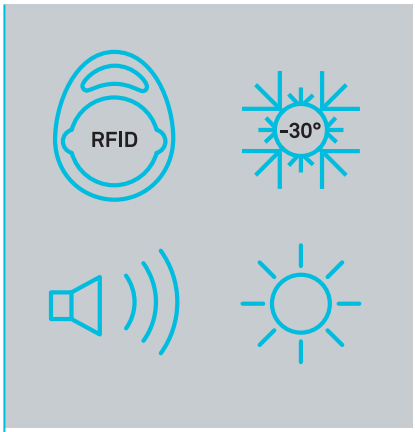


Write Filter & Faststart XP **Rescue team for your file system**
- Avoids the file system becoming corrupted after improper use or in the event of power failure
- Authorised people can make changes using password protection



Ignition function **A bright spark of an idea**

When installed on board vehicles:
- Switch on together with the ignition
- System is blocked when the ignition key is removed
- Automatic terminal shutdown after expiry of an adjustable timer
- Security when leaving the vehicle
- Work can quickly be resumed after a break



Versatile **Configurations for every individual case**
- RFID reader for user recognition*
- Heater for use in freezer temperature range down to –30 °C
- Automatic* or manual brightness control
- Integrated speakers as acoustic signal transmitters

Green IT **Makes double sense**
- Zero power management (minimised battery discharge in idle state)
- Low power and ultra low power design

Operating systems **The basis of your applications**
- Windows® CE 6.0* or Windows® CE 5.0** or Windows® XP embedded as a platform for terminal solutions based on flash memories
- Windows® XP Professional as an open platform on hard disk
- Linux on request

Windows® CE 6.0* **One image for all**
- A single image for thin clients and open applications
- Display resolution and language configuration (German and English) possible

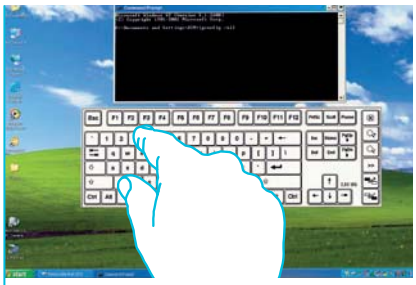
Front keys Simply good
- Five front keys for comfortable control
- Soft keyboard activation
- Task switching per toggle key
- Programmable hotkey
- Right mouse key
- FN key for setting display brightness and volume per toggle key

Front USB Just handy
- For servicing or connection of external peripherals
- Can be disabled by a software controlled USB lock

Connections Securely connected
- Strain relief for all cables
- 5V power supply for connecting an external scanner selectable via switch*

Power supply Power is needed
- ATX extended range power supply
- Terminal automatically switches into a »Soft off state« if it hasn't been used for a long time
- Voltage fluctuations in vehicles are compensated

WLAN antennas Together they are strong
- WLAN module incl. diversity function for an optimised reception
- WLAN standards: 802.11 a*/b/g
- External antenna output for connecting a roof antenna*
- Antennas are integrated in the front panel in order to prevent destruction or theft*



Soft keyboard Input the easy way
- The soft keyboard is available as early as during login
- You can switch between a full keyboard and a representation optimised for terminal emulations
- Size and included functions can simply be adapted depending on the application and requirements; both a numeric block as well as an alphanumeric keyboard can either be displayed individually or combined
- Automatic storage of most recently used settings when closing the soft keyboard
- Different languages and/or matching keyboard layouts, selectable depending on the operating systems used
- Additional setup options for colour adaptation or transparent mode
- API interface for controlling the keyboard from a customer application

Design Can withstand anything
- Robust aluminium diecast case
- IP 65
- Without fans
- Front panel made from glass fibre reinforced polyamide* or anodised aluminium**
- Design insensitive to vibrations

* VMT6000 series only ** VMT5000 series only

VMT brackets

Brackets **Solid from the base up**
- Different brackets are available for use at different points of installation
- All adapters are made from robust stainless steel and are wear proof
- Terminals can comfortably and safely be arrested in a large variety of inclination angles by using Nord-Lock bolts
- More bracket versions are available on request

Bracket for Rittal® Top pivot mounting*
- Installation adapter for support arm systems on machines for installation from the top

Bracket for VESA 75 Standard*
- Installation bracket for VESA 75 compatible wall mounts and support arms

Bracket for desktop or vehicle installation*
- Installation adapter for attachment to desktops or vehicles

Angular mount left/right*
- Angular mount for attachment on desktops, vehicles or at the wall

Bracket for Rittal® Bottom pivot mounting*
- Installation adapter for monitor stands and support systems for machine installation from the bottom

* You can view our dimensional drawings on www.ads-tec.de/Terminals

VMT5000 series – technical data

Device data

		VMT5010	VMT5012	VMT5015	VMT5017
Case		Powder coated aluminium diecast case			
Front panel		Anodised aluminium			
Display		10.4" TFT	12.1" TFT	15" TFT	17" TFT WXGA+
	Resolution	800 x 600 pixels	800 x 600 pixels	1024 x 768 pixels	1440 x 900 pixels
	as an option		1024 x 768		
	Represented colours	16.1 million at max	256k at max	16.1 million at max	256k at max
Touch		Resistive industrial touchscreen			
Processor	Intel®	Celeron® M 800 MHz ULV Celeron® M 1,0 GHz ULV			
		–	Pentium® M 1.1 GHz	Pentium® M 1.1 GHz	Pentium® M 1.1 GHz
		–	–	Pentium® M 1.4 GHz	Pentium® M 1.4 GHz
RAM		512 MB to 2 GB DDR RAM			
Graphic controller		Intel® 855 GME			
Graphic memory		a maximum of 64 MB shared			
Mass storage device		1 x CompactFlash® slot Alternative: 2.5" automotive hard disk with a minimum of 40 GB (UDMA)			
Interfaces		COM 1 (RS232) 1 x PS/2 mouse 1 x PS/2 keyboard 2 x USB 2.0* As an option: 1 x USB 2.0* integrated in front panel Line Out As an option: Keyboard simulator			
Network		1 x Ethernet (10/100MBit) RJ 45			
Sound		Sound output via two internal speakers			
Radio		As an option: Integrated WLAN 802.11 (b/g) module incl. diversity antennas			
Power adapter		24 V DC +/– 20% (19 to 29 V)			
Operating system		Windows® CE 5.0 or Windows® XP embedded as a platform for terminal solutions based on CompactFlash® Windows® XP Professional as an open platform on hard disk			
Protection class		IP 65			
Operating temperature		–20 to +45 °C			0 to +40 °C
Dimensions (W x H x D)		295 x 232 x 73 mm	332 x 255 x 68 mm	395 x 292 x 74 mm	460 x 302 x 82 mm
Weight		Approx. 2.5 kg	Approx. 3.0 kg	Approx. 4.8 kg	Approx. 5.2 kg
Vibration resistance		DIN EN 60068-2-6 MIL-STD 810F (01.2000), annex C., figure 514.5C (US highway truck transportation)			
Shock resistance		DIN EN 60068-2-27			
Humidity		10 to 85% without condensation			

Accessories

Brackets	As an option, different installation adapters are available for different types of applications
Keyboard trays	As an option, keyboard trays of different sizes are available for external keyboards
Power adapter	Desktop power adapter for converting 230 V AC in 24 V DC
Cable installation kits	Grommets for different diameters of cables
Connecting cables	Cable set for connecting the device with forklifts

* can be disabled by software

VMT6000 series – technical data

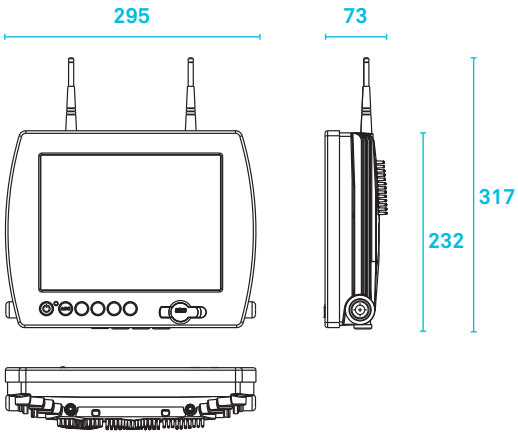
Device data

	VMT6008	VMT6012	VMT6015
Case	Powder coated aluminium diecast case		
Front panel	Fibreglass reinforced plastic, paint coated		
Display	8" TFT	12,1" TFT	15" TFT
Resolution	800 x 480 pixels	800 x 600 pixels 1024 x 768 pixels	1024 x 768 pixels
as an option			
Represented colours	16.1 million at max	256k at max	16.1 million at max
	Automatic or manual display brightness adjustment		
Touch	Resistive industrial touchscreen		
Processor	Intel® Atom™ 1.1 GHz	Intel® Atom™ 1.1 GHz or 1.6 GHz	
RAM	1 GB or 2 GB DDR2 RAM		
Graphic controller	Intel® SCH US15W incl. integrated graphic controller		
Graphic memory	a maximum of 8 MB, shared		
Mass storage device	2 x Flash SSD (via internal USB connections)	1 x Flash SSD (via internal USB connection) Alternative: 2.5" automotive hard disk with a minimum of 40 GB (UDMA)**	
Interfaces	COM 1 (RS232, 5 V power supply for scanner can be enabled) 1 x PS/2 (keyboard /mouse) 2 x USB 2.0* (can be disabled by software) 1 x USB 2.0* integrated in front panel (can be disabled by software) As an option: Keyboard simulator		
Network	2 x Ethernet (10/100/1000MBit) RJ 45		
Sound	Sound output via two internal speakers		
Radio	As an option: Integrated WLAN 802.11 (a/b/g) module incl. diversity antennas As an option: Connection for an external antenna		
RFID	–	As an option: Mifare® reader 13.56 MHz for ISO 14443 A, Mifare® class and Mifare® PRO boards	
Power adapter	24 V DC +/– 20% (19 to 29 V)		
Operating system	Windows® CE 6.0, Windows® XP embedded or Linux embedded as a platform for Terminal solutions based on Flash SSD Windows® XP Professional or Linux as an open platform on hard disk		
Protection class	IP 65		
Operating temperature	–20 to +55 °C		
Dimensions (W x H x D)	254 x 182 x 62 mm	338 x 261 x 62 mm	400 x 305 x 65 mm
Weight	Approx. 2.1 kg	Approx. 3.3 kg	Approx. 4.3 kg
Vibration and shock resistance	EN 60721-3-5 (06.1998), class 5M3** (terrestrial vehicles), 5h of noise type vibrations; 3.6g rms and 30g peak value MIL-STD 810F (01.2000) annex C.,figure 514.5C (US highway truck transportation)		
Humidity	10 to 85% without condensation		

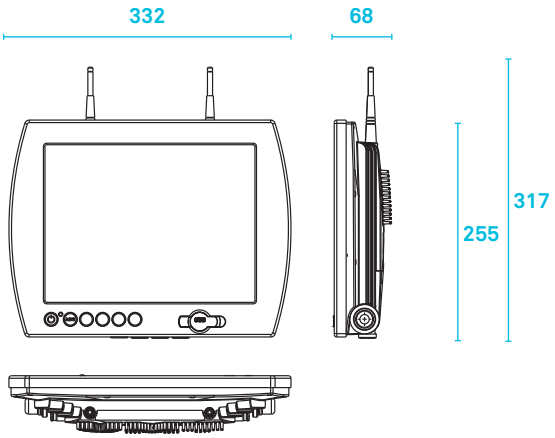
Accessories

Brackets	As an option, different installation adapters are available for different types of applications
Keyboard trays	As an option, keyboard trays of different sizes are available for external keyboardsg
Power adapter	Desktop power adapter for converting 230 V AC in 24 V DC
Cable installation kits	Grommets for different diameters of cables
Connecting cables	Cable set for connecting the device with forklifts

* All external USB interfaces are equipped as High Current type interfaces for up to 1A ** Hard disk version: Vibration/shock resistance acc. to class 5M2



VMT5010



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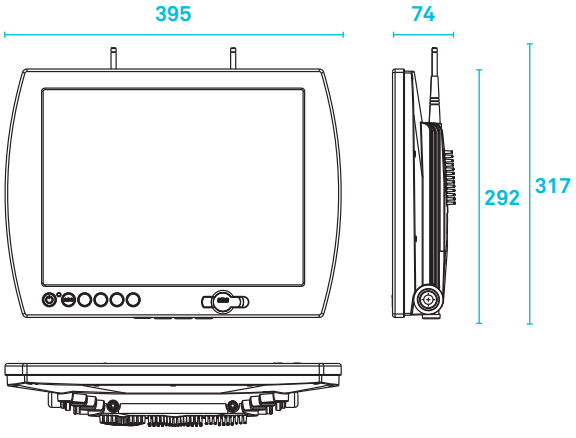
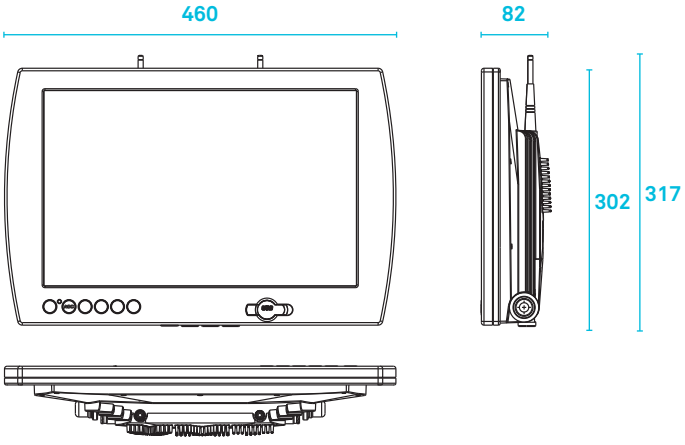
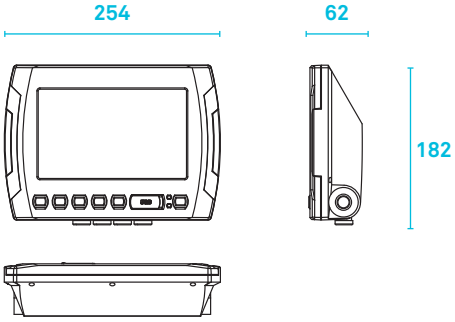


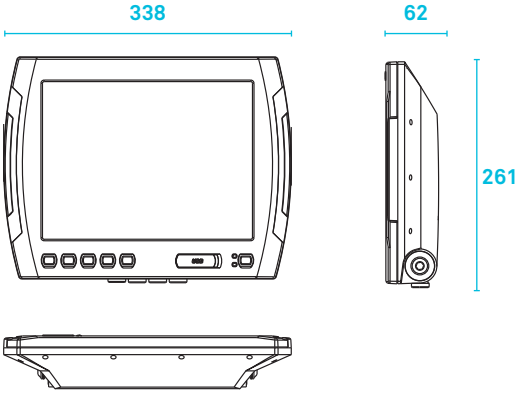
VMT5015



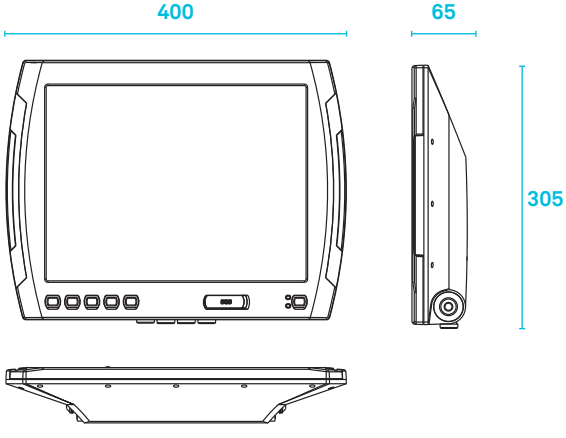
VMT5017



VMT6008



VMT6012



VMT6015

Scalable **Optimised for your application**

- Different display sizes
- Choose from a variety of different storage media and processor versions
- The range of different brackets is available for all VMTs

Product portfolio

DZ-HAND-93040-1/B Terminals Prospekt E 02-2010

Tablet PCs

IT Infrastructure

Terminals

Industrial PCs

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Tablet PCs
Mobile without compromise

adstec
the rugged world of IT®

Mobile without compromise IT structures follow the continuously evolving requirements to a networked world, and also increasingly support processes and mobile work. ads-tec developed the TT13 Tablet PC for professional mobile use both indoors and outdoors.

TT13

TT13 product benefits

Heat exchanger **Intelligent and cool**

- The device interior is hermetically sealed – no air exchange takes place between interior and environment
- A double bottom with integrated fans, which can be replaced in the field, serves as heat exchanger and allows thermally secure operation even with powerful processor platforms

Bad weather conditions **Never mind**

- All around IP 54 protection, front panel with IP 65
- Replaceable rubber caps protect all interfaces
- Allows efficient work where other mobile computers would fail

Racing car technology **Well proven and robust**

- An enclosed and glass-fibre reinforced monocoque frame manufactured in one piece provides the basis for extreme robustness and the most compact design

Interfaces **Open for standards**

- Interfaces including rubber caps:
  - 2 x USB 2.0 (1 port, maximum output current of 1.5 A)
  - 1 x USB 2.0 recessed inside a »dongle tray« for sticks of up to 52 x 16.5 x 8.2 mm in size
  - RJ 45 Ethernet
  - Audio: headphone Out and MIC IN
  - DC IN 20V/DC
  - Express card, wide slot
- Optional industrial ODU plug incl. one of these options:
  - Ethernet port for 10/100Mbit
  - USB
  - RS232

SIERRA WIRELESS
EM POWERED™

Radio communication **Invisibly connected**

- Radio options (antennas are invisibly integrated in the device):
  - WLAN 802.11 a/b/g
  - Bluetooth 2.0 CLASS 1 and CLASS 2
  - 3G UMTS/GPRS Sierra Wireless
  - RFID reader (Mifare) for tag recognition

TT13 product benefits

HIGHLIGHT

Readability with strong sunlight **So that brightness doesn't leave you blinded**

- Light reflections are reduced to a minimum
- Good readability, even with bright ambient light
- No battery life reduction

Independence from power sockets **Enabling durable mobile work**

- Can hold two identical smart lithium ion batteries
- Unlocking the battery and replacing it can even be done with gloves
- Operation with just one battery possible
- One battery can be replaced during operation without any interruption (hot swap function)
- Charge status directly displayed at the battery

Green IT **Makes double sense**

- Zero power management (minimised battery discharge in idle state)
- Low power and ultra low power design

Widening the horizon **See more with a widescreen display**

- Resolution of 1280 x 800 pixels in 16:9 format
- Form factor allows XGA resolution incl. additional soft buttons to the right and left

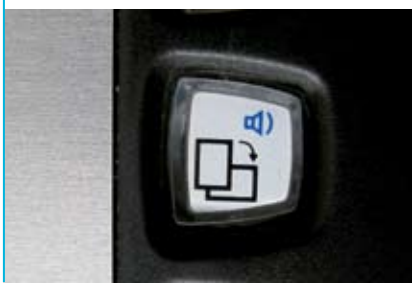
Operating philosophy **Directly and intuitively with a touch**

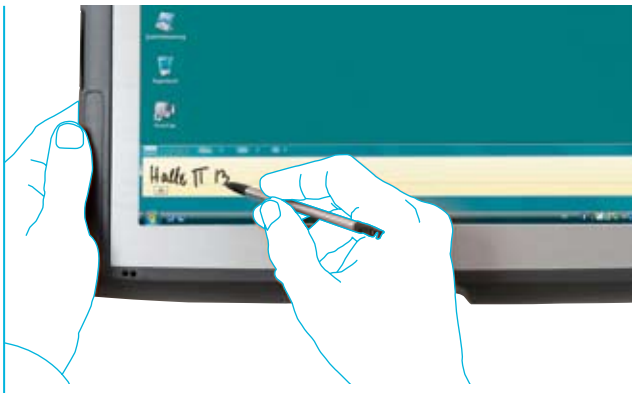
From simple touchscreen function to complex handwriting recognition:

- Default equipment: Resistive, “five wire” industrial touchscreen with high accuracy levels – the touchscreen calibration data are stored independent from the hard disk
- Touchscreen stylus is ready to use in a holder on top of the display
- Soft keyboard incl. zoom function in different language layouts
- 6 illuminated front keys:
  - Power key
  - Soft keyboard activation key
  - Task switching per toggle key
  - Freely programmable hot key
  - Right mouse key
  - FN key for setting display brightness and volume

User identification **Simple and touch-free**

- As an option: Internal RFID reader incl. antenna underneath the keyboard
- Simple login/identification by using passive RFID tags
- More efficient, simple and secure than with user name/password





Operating systems **The basis of your applications**

- Microsoft Windows® Vista incl. handwriting input
- Microsoft Windows® XP
- Microsoft Windows® XP embedded
- Microsoft Windows® CE on request
- Linux on request

TT13 accessories

Adapters **Connecting with added values**

- Docking for “stand and wall-mount installation”:
  – Connection with standard mechanic programmes
  – VESA adapters

- Customized docking stations and brackets

Theft protection **Mechanically secured**

- Like in tool changers of modern machines, a robust ball locking device is used to securely and easily lock the device on top of the docking stations in place per snap-in connection

Recharging **Simply recharge the spare batteries**
- External charging station for two batteries
- Desktop (lying flat) or wall-mount operation possible

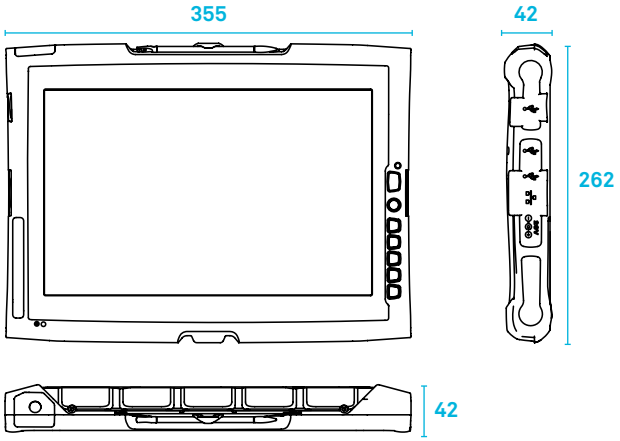
Comfortable carrying **Optimised for your purpose**
- Four robust M5 thread inserts for carrying straps and brackets
- Three-point strap for robust “vendor’s tray arrangement”
- Elastic wrist strap

Transport case **For a safe arrival**
- Robust diecast hard-top case design
- Four additional batteries allow long term mobile work; the manual power adapter, cable sets and accessories are accommodated in separate compartments
- Soft rubber coated handle for comfortable carrying
- Stackable

TT13 technical data

Device data

Display	Resolution: 1280 x 800 pixels
Touchscreen	Default equipment: Resistive, “five wire” industrial touchscreen
LED indicators	Power/Sys HDD WLAN Bluetooth
Keyboard	Soft keyboard in different language layouts Six hardware keys with the following functions: – Power – FN (second level functions) – Toggle key/FN key: Increase volume – Hot key/FN key: Decrease volume – Right mouse key/FN key: Increase brightness – Soft keyboard/FN key: Decrease brightness
Processors/chipsets	Intel® Core™ Solo 1.067 GHz ULV (with bottom incl. fans), 945GME, ICH7 Intel® Core™ Duo 1.2 GHz ULV (with bottom incl. fans), 945GME, ICH7
RAM	1 GB or 2 GB DDR2 SODIMM
Mass storage device	2.5" SATA hard disk
FLASH	As an option: 1 x Flash SSD (via internal USB connection)
Interfaces	2 x USB 2.0 (1 port, maximum output current of 1.5 A) 1 x USB 2.0; installed in recess 1 x RJ 45 10/100Mbit 1 x MIC IN 1 x Headphone out Docking connector for a variety of docking concepts
AUDIO	Integrated stereo speakers/microphone
Radio	As an option: – WLAN 802.11 a/b/g – Bluetooth CLASS 1 and CLASS 2 – RFID reader (Mifare 13.56 MHz) – GSM/UMTS/GPRS Sierra Wireless
Slots	Express card, wide slot As an option: – SIM card reader for mobile radio card – SIM card for ads-tec SCM (smart card based management)



Batteries	Two battery slots for smart lithium-ion batteries (each approx. 250 g) 14.4V, 32Wh Batteries include a charge status indicator
Power adapter	External power adapter 115/230V/AC 20V/DC
Certification	CE, UL, cUL
Protection class	IP 54 (IP 65 for the front)
Operating temperature	0 to 40 °C, extended range on request
Dimensions	355 x 262 x 42 mm
Weight	Approx. 2 kg to 2.5 kg without batteries and depending on equipment version

Accessories

Batteries	32Wh
Transport/storage	Robust transport case from plastic
Charger	External charger for two batteries
Docking stations	VESA/wall-mount/stand Customized docking stations
Straps	Wrist strap Three-point strap
Spare power adapter	External power adapter 115/230V-DC 20V/DC 12V/DC power adapter for in-car use via cigarette lighter connection
Touchscreen stylos	Passive touchscreen stylos
DVD drive	External USB DVD drive, can be supplied with power from the TT13 device without any additional power adapter connection at the drive
Display protection	Plastic cover for display protection
ODU cable	Cable incl. industrial ODU plug on RJ 45, USB or RS232 basis

Product portfolio

Tablet PCs

IT Infrastructure

Terminals

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DZ-HAND-93030-1/B Tablet PCs Prospekt E 02-2010

IT Infrastructure
WLAN 802.11 Access Points and Clients

adstec
the rugged world of IT®

Wireless communication – made in Germany

Wireless networks are important design tools for Ethernet based infrastructures. Be it to avoid expensive cable routing or to connect mobile subscribers. ads-tec offers WLAN components for industrial use and certified according to ETSI and FCC. A 100 % own development strategy is the basis for versatile added values.

RAP/RAC1000 series

RAC2000 series

RAP and RAC product benefits

Single or Dual Access Point
Communication on several channels

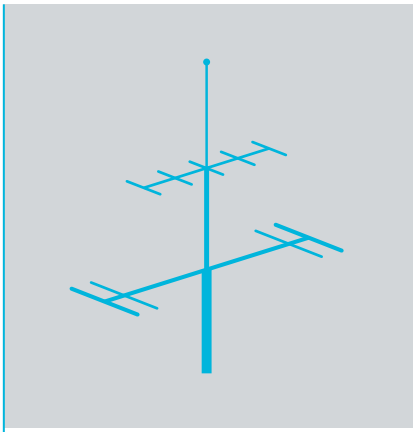
- Up to two WLAN cards per device are available for simultaneous provision of 802.11b/g and 802.11a/h networks, each time with the maximum transmission rate
- Use in dual radio WDS systems in order to achieve higher transmission rates in distributed wireless networks

Network connection **Glass-fibre or copper**

- A version including a MTRJ fibreoptic connection is available for areas with strong EMC influence and with long distance connections

Power supply **Integrated and rich in versions**

- 24V DC
- 115/230V AC
- PoE Power over Ethernet



Antennas **For best results in 2.4 and 5 GHz band**

- WLAN antennas for the 2.4 and 5 GHz band and suitable for industrial use are supplied with the device, ex factory
- Two R-SMA connections are available per WLAN module, which can be equipped with alternative antennas
- The individual features of these antennas can be saved in the web interface

100% suitability for industry use **IP 65 protected**

- Use of standard cables in a protected service duct
- Alternatively, the RAP device is also available in an access client version (RAC)
- The RAC1000 series offers an integrated 4-port switch as an additional option
- Mounting adapter installed in the rear for simple and secure installation
- Each RAP access point can also be operated as a pure access client by simply changing the mode setting

SIM card for simple backup **Plug & play configuration**

- The entire configuration of RAPs and RACs can be stored on a SIM-card available as an option
- The device automatically reads the SIM card contents and starts the device with this configuration
- Devices can quickly and cost efficiently be replaced without any specialists

RAC2000 series **One device for all purposes**

- Choose between a version with one or two WLAN modules for operation with 2.4 and 5 GHz
- Internal antennas and a specific case design to promote excellent reception
- Seamless roaming: Changing cells as fast as possible without any packet loss

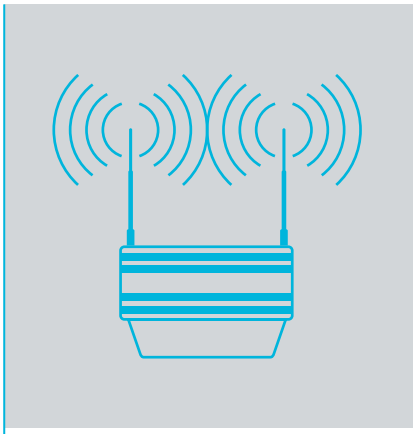
Possible connections **Focused on the essential**

- 24V DC voltage supply
- 1x RJ45 Ethernet connector
- 2x USB interface for transparent client connection of a USB printer
- Well proven ads-tec SIM card technology for plug and play configuration at the device

Ruggedized Access Client **Compact and rugged**

- Space saving design
- Ideally suited for use in overhead conveyors and other conveyor equipment
- IP 65 when installed
- Simple and quick installation

RAP and RAC product benefits



WLAN security **Utmost security for wireless networks**

- WEP64, WEP128, WPA/TKIP and WPA2/CCMP (AES) security modes
- Authentication: WPA-PSK (802.11i), WPA radius (enterprise), 802.1x
- Static MAC addresses
- Hide SSID for RAP and RAC
- X.509 certificate administration incl. uploading of client, CA and CRL certificates

WLAN roaming support **Fast roaming and seamless data traffic**

- Standard roaming with RAC: 50–500ms
- With roaming tables in 5 GHz band: 10–50ms
- Extended background scanning with Dual RAC: 10–50ms
- Seamless roaming: Seamless hand-over of clients from cell to cell without any time delay in connection with ads-tec Access Points

WLAN features **Adaptable for ideal results**

- Fully compatible with IEEE 802.11a/b/g/h requirements
- There are 19 interference free channels available in the 5 GHz band
- TPC (transmission power control) for transmission radius restriction or for automatic power adaptation to the maximum level currently required
- DFS support for a maximum transmission power of up to 1 Watt in compliance with IEEE 802.11h
- Flexible timeout adjustment for bridging of long distances

WLAN without any interruption **Even with 5 GHz**

- Complies with the EN 301 893 ETSI standard, spec. V1.4.1, which is mandatory since April 2009, and is already prepared for the V1.5.1 specification
- Indoors, up to 16 interference-free channels can be used in the 5 GHz band, and up to 8 channels in outdoor applications – a high AP density is possible without interferences
- The seamless roaming client provides for data transmission free from any interruptions – even during channel switching and radar detection

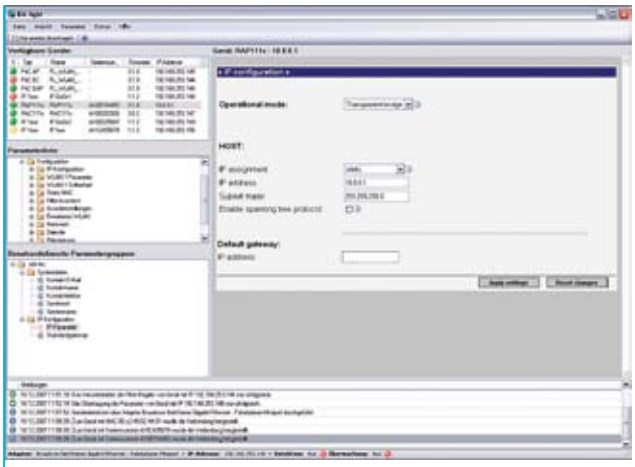
WDS support **Establishing cost efficient WLANs**

- Fully transparent bridge (FTB) RAPs and RACs:
  Transparent communication between large numbers of Ethernet clients behind Access Clients as well as behind an ads-tec Access Point
- Single client bridge (SCB) RACs & APs:
  Allows the transparent connection of an Ethernet subscriber – the connected device is masked behind the MAC address of the WLAN module
- Multi client bridge (MCB) 4-port switch RACs & APs:
  Allows connection of several Ethernet subscribers
- The first device is provided with layer-2 transparent access, all other devices obtain an IP transparent access
- Wireless backbone (WB) with Dual RAPs: Establishment of cost efficient but powerful WLAN structures without any additional cable routing

VLAN tagging, QoS and prioritisation Strictly in the right order
- Machine protocols have preference
- Real time Ethernet applications can easily be used in combination with VLANs
- Even networks under high loads can securely convey important data thanks to the QoS feature

Event log and monitoring Always informed about what's going on
- Password protected event log with local or remote data retrieval
- Event log transmission to a SNMP server (SNMPv1, SNMPv2, SNMPv3)
- Client monitoring for supervision of TCP/IP terminals

WLAN monitoring mode Opportunities for professional analysis
- Operation in monitoring mode allows WLAN protocol analysis by using Wireshark on an 802.11 level
- This way, you can perform in-depth analyses on site without having to use any additional WLAN analysis tools



IDA light administration tool Central administration

Tool for centralised administration of access clients and access points in a network
- Automatic detection in corporate networks
- Centralised IP assignment
- Allocation to groups and creation of firewall rules can be copied per drag & drop
- Centralised firmware updating
- IDA light is permanently included in the scope of delivery without any additional costs

Network functions Routing and real time Ethernet
- Operation in IP router mode or as a transparent bridge (layer 2)
- Fully compatible with 802.11e and real time Ethernet protocols
- Definition of up to 10 static routes, as well as dynamic routing acc. to RIPv2 and OSPF

Integrated firewall Filtering on layer 2 and layer 3
- Predefined filter rules and rulesets e.g. for POP3, ModbusTCP or Profinet
- Filter wizard for simplified creation of your own rules

Configuration via web interface Simple control and configuration
- All functions of RAPs and RACs can be configured via the web interface
- Interface is secured with https and certificates
- Online help and plausibility checks for all important parameters in order to avoid errors in the configuration

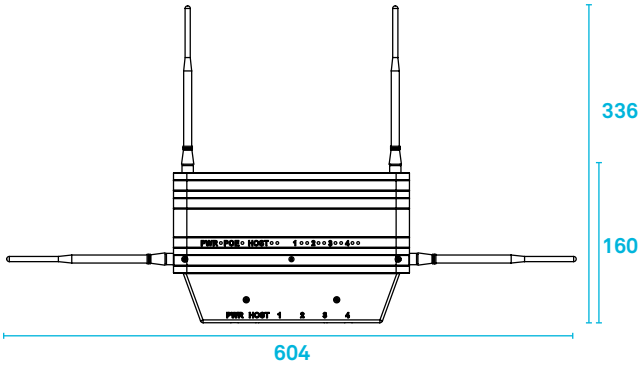
RAP and RAC – technical data

RAP and RAC versions

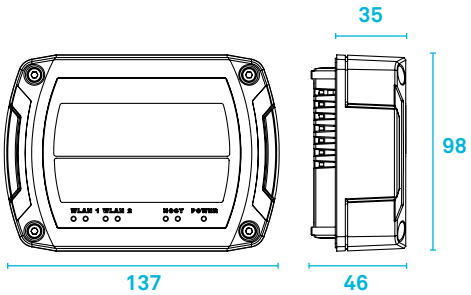
	Rugged Access Point RAP1000 series								Rugged Access Client RAC1000 series						Rugged Access Client RAC2000 series	
	1110	1111	1210	1211	1120	1121	1220	1221	1120	1121	1220	1221	1510	1511	2110	2120
1 WLAN module	x	x	x	x									x	x	x	
2 WLAN modules					x	x	x	x	x	x	x	x				x
1x Cu-RJ45 port	x	x			x	x			x	x			x	x	x	x
4x Cu-RJ45 port (switch)													x	x		
1x fibreoptic Ethernet port			x	x			x	x			x	x				
24 V DC	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PoE 48 V DC	x	x			x	x			x	x			x	x		
AC integrated 110/230 V		x		x		x		x		x		x		x		
RAP incl. client mode	x	x	x	x	x	x	x	x								
Seamless roaming client*									x	x	x	x				x

* Seamless roaming clients:
From access point to access point without any packet loss or interruption of data transmission.

RAP/RAC1000 series



RAC2000 series



RAP and RAC1000 series – hardware specification

Ethernet connection	HOST: RJ45 (incl. POE) 100BaseTx FD or fibreoptic (MTRJ connection), 100BaseFx
Power supply	24V DC connection, POE (Power over Ethernet IEE802.3af), optional: 110/230V AC Redundant power supply between PoE, 24V and 110/230V AC
LEDs	Ethernet link LED, Ethernet activity LED, PoE LED, Power LED
SIM card reader	For storing the configuration on a SIM card
CPU	Intel® IXP425 533MHz
Memory	64MB RAM and 32MB Flash
Case	Metal case from diecast magnesium, shock and vibration resistant, without any rotating parts, simple installation
Miscellaneous	Default settings button
External dimensions	250 x 160 x 65 mm (W x H x D); without antennas
Vibration resistance	DIN EN 60068-2-6
Shock resistance	DIN EN 60068-2-27
Weight	Approx. 1.2–1.4 kg (depending on equipment version)
Temperature	–20 °C to + 55 °C
Humidity	10 to 85 % without condensation
Protection class	IP 65

RAC2000 series – hardware specification

Ethernet connection	HOST: RJ45 100BaseTx FD
Power supply	24V DC connection
LEDs	Power link/activity WLAN & HOST
SIM card reader	For storing the configuration on a SIM card
CPU	Intel® IXP435 533MHz
Memory	64MB RAM and 16MB Flash
USB	2 x USB 2.0 interfaces (500mA current output at max)
Case	Plastic case (PA6.6, fibreglass reinforced)/aluminium case, shock and vibration resistant, without any rotating parts, simple installation
Miscellaneous	Default settings button
External dimensions	137 x 98 x 46 mm (W x H x D)
Vibration resistance	DIN EN 60068-2-6
Shock resistance	DIN EN 60068-2-27
Weight	Approx. 0.8 kg (depending on equipment version)
Temperature	–20 °C to +55 °C (if mounted vertically)
Humidity	10 to 85 % without condensation
Protection class	Front: IP 65

General data for all RAPs and RACs

Basic WLAN parameters

Radio standards	IEEE 802.11a/b/g/h
Frequency range	2.412 to 2.483 GHz (IEEE 802.11b/g) in ISM band; 5.15 to 5.34 GHz and 5.47 to 5.725 GHz (IEEE 802.11a/h)
Radio channels	13 with 802.11 b/g; 19 with 802.11a; automatic channel selection or permanently setup channel
Transmission bandwidth	According to 802.11b (11 Mbit/s), 802.11g (54 Mbit/s), 802.11a/h (54 Mbit/s) standards; Automatic rate selection (ARS) or fixed rates auto-fallback
Modulation	802.11b: DSSS; 802.11g: OFDM; 802.11a/h: OFDM
Antennas	2 external R-SMA antenna connectors per radio module; vertical/horizontal polarity incl. antenna diversity, scope of delivery: 2 x 5 dBi Omni (2.4 GHz) + 2 x 7 dBi Omni 5 GHz (with RAP/RAC1000 series only)
Operational mode	Client, access point or monitor mode can be configured
SSID	Network name may include up to 32 characters incl. special characters
Long distances	Distance setup option for long distances to facilitate automatic adjustment of SIFS and ACK timeout values
Antenna diversity	Antennas are selectable for setups including one antenna, or can automatically be selected for the best antenna with respect to transmission and reception
Transmission power	Transmission power can be configured between 0 dBm and 30dBm

WLAN security

Security modes	WEP64, WEP128, WPA/TKIP, WPA2/CCMP (AES)
WPA authentication	WPA-PSK WPA radius (enterprise), 802.1x: Access Point primary and secondary radius server Access Client phase 1: EAP/TLS, EAP/PEAP, EAP/TTLS phase 2: MD5, MSCHAPv2
Other WPAs	GMK and PMK rekeying interval can be configured, WP parameters
Static MAC filter	MAC filter in access point mode, up to 500 MAC addresses can be configured, fast import by using the text-file upload function
Hide SSID	Yes
X.509 certificate administration	– Separate certificate administration for verification – Upload function for client, CA and CRL certificates – Preinstalled demo certificate set to facilitate quick functional tests
IAPP	The Inter Access Point Protocol ensures that all access points list a certain client just once in their internal association tables. It ensures that the MAC address tables of the switch are automatically updated immediately, even if the client doesn't send any data at all. ads-tec IAPP extension: IAPP client update, for auto-channel function with roaming table.

Roaming

Optimum roaming characteristics thanks to four different methods:
- Standard roaming: Optimised for speed thanks to restricted channel lists, roaming thresholds and the option to configure active scanning
- Roaming tables: A permanent order of access points can be configured, e.g. with linear vehicle systems (incl. Modbus/TCP API for direct control of characteristics)
- Seamless roaming: Roaming without any interruptions – only in connection with ads-tec Access Points and Access Clients
- Extended background scanning: Background scanning using 2 WLAN adapters, allows fast roaming with high packet-rate data traffic (only with RAC1x2x)

WLAN 5 GHz parameters

DFS	Dynamic frequency selection (with RAP/RAC1000 series only) – 802.11h compliant – DFS can be enabled in client mode for a high radio output power of 1W in case of point-to-point radio system links (otherwise only 200mW are admissible) – DFS can be disabled for indoor use with a reduced transmission power – DFS channel switch announcement support in the beacon for channel switching without any interruptions for use with radar detection
TPC	Transmission power control – Configuration option for antenna amplification, and as a result, for continuously optimised power within the admissible limits – Power limitation can be configured incl. the 802.11h power constraint for automatic power reduction of the clients – Different power and update profiles can be configured for TPC, e.g. max. power/low update priority – TPC can also be used with 2.4 GHz

IP parameters

IPv4	– Single IP address for management in transparent bridge mode; two or three IP addresses (with dual access point) in IP router mode – All interfaces can be configured as DHCP clients – Manual configuration option for default gateway – Supports NAT, e.g. between Ethernet and WLAN – 10 port forwarding can be configured with NAT enabled, as 1:1 NAT or on individual TCP/UDP ports
IP routing	10 static network or host routes can be configured, dynamic routing acc. to RIPv2 and OSPF (basic functions)
DHCP server	A DHCP server can be configured for WLAN or HOST; DNS and gateway are dynamically stored as the relay if an interface is configured as a DHCP client
DHCP relay	DHCP requests can be forwarded to a centralised DHCP server
Wireless backbone	Wireless backbone structures (WDS) can be established by using dual access points

Configuration and monitoring

Web interface	– Online help tooltips for all important options – Web interface language switchable between German/English – Access via HTTP/HTTPS can be configured per interface, access violations can be recorded in a log – Replaceable HTTPS certificate – HTTP access can be disabled
SIM card reader	Specific ads-tec SIM cards can be used in the integrated SIM card reader in order to store the configuration. Should the device be replaced, you simply remove the SIM card from the old device and insert it in the replacement device. No further reconfiguration required
IDA	IDA (**I**ndustrial **D**evice **A**dministration) tool from ads-tec: Auto detection and IP configuration on layer 2 level by using the IDA tool for quick commissioning of several devices. Parameterisation of several global parameter groups
SNMP	SNMPv2/v3 support allows full integration in commercially available system monitoring tools

Product portfolio

Tablet PCs

IT Infrastructure

Terminals

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DZ-HAND-93020-1/B IT Infrastructure RAP+RAC Prospekt E 02-2010

Industrial Panel PCs
OPC7000 series
Focused on the essential

adstec
the rugged world of IT®

Our 2010 changeover to a new generation – four new Panel PC formats for the coming decade

Well proven many thousand times, ads-tec Panel PCs from the OPC5000 series reliably do their duty worldwide for now more than 10 years. Geared up to the require-ments of the next decade, ads-tec changes over to a new generation by introducing the OPC7000 series. Focused on the essential without compromise, and highly optimised in each and every detail.

OPC7008
OPC7013
OPC7015
OPC7022
Windows 7

OPC7000 series – product benefits

OPC7000 Series **Proven technology now further improved**

- Monitor sizes are now available in the up-to-date widescreen format 8", 13.3", 15.4" and 21.5"
- Vertical or horizontal arrangement possible
- Well-proven system with 5 robust front keys
- 5-wire industrial touchscreen
- Robust aluminium diecast case
- Front panel from glassfibre reinforced plastic (painted)
- Front USB (can be disabled by software)
- Comfortable hard disk access for servicing, VGA HD-SUB 15-pin connector, RAM, FLASH, battery and fan

Technology **Focused on the essential**

- A powerful cooling system allows high processor performance even with demanding operating temperatures (of up to 55 °C)
- Two (with 8") or (otherwise) five rear USB interfaces
- Serial interface (9-pin D-SUB RS232)
- Two (with 8") or (otherwise) three independent 10/100/1000 Ethernet ports
- 24 V DC power supply
- Industrial FLASH memory/standard or automotive hard disks
- CMOS buffer battery 1/2AA with 850mA/h (capacity four times larger than standard)

Panel installation **Simple and quick**

- Mounting clamps are integrated in the panel and cannot be lost
- Simple snap-in procedure thanks to Quick-Snap system
- The clamping pieces can be reset with a screw driver or with your fingers
- Great access even where the installation space is tight
- Force transfer into a robust diecast case

Quick-Snap Step 1

Quick-Snap Step 2

Quick-Snap Step 3

Quick-Snap Step 4

Quick installation using the example of OPC7013, OPC7015, OPC7022

adsX² technology **High tech made in Germany**

- Long-term system availability
- 100 % inhouse development ensures 100 % support
- Soldered processors instead of using sockets

Intel® Celeron® 1.2 GHz (Dual Core)
Intel® Core™2 Duo 2.26 GHz Intel® Atom™ 1.6 GHz (N270)

adsX² for OPC7013, OPC7015 and OPC7022

Intel® Atom™ 1.1 GHz (Z510)

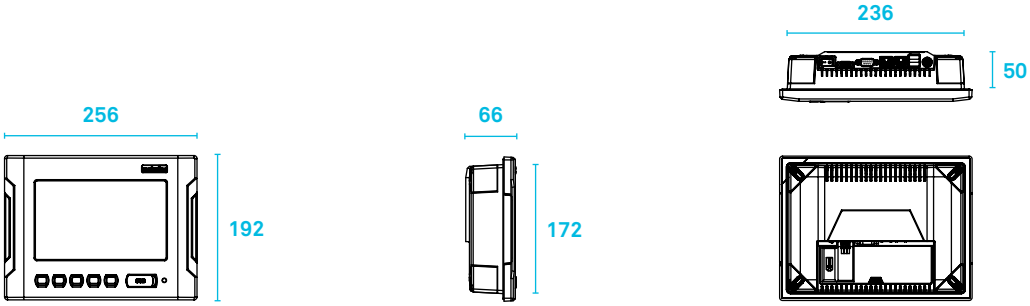
adsX² for OPC7008

OPC7000 series – technical data

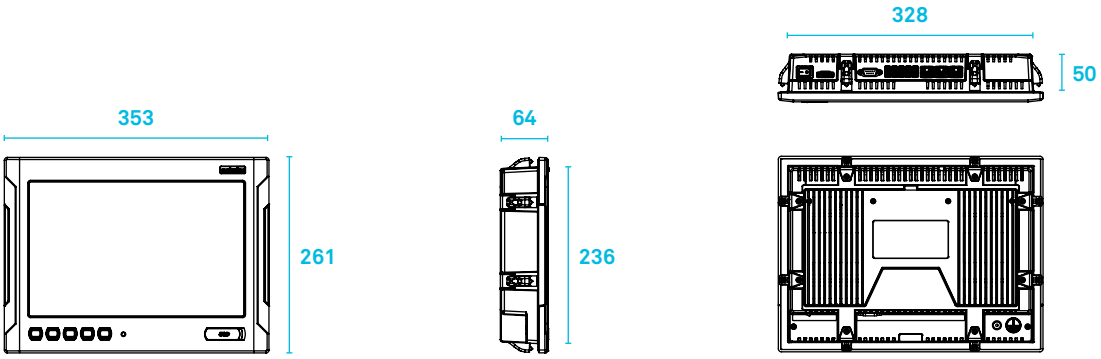
Device data

	OPC7008	OPC7013	OPC7015	OPC7022
Case	Powder coated aluminium diecast case			
Front panel	Fibreglass reinforced plastic, paint coated			
Display Resolution Represented colours	8" TFT 800 x 480 pixels 16.1 million at max	13.3" TFT 1280 x 800 pixels 256k at max	15.4" TFT 1280 x 800 pixels 256k at max	21.5" TFT 1920 x 1080 pixels 16.1 million at max
	Manual display brightness adjustment			
Touch	Resistive industrial touchscreen			
Processor Intel®	Atom™ 1.1 GHz (Z510)	Atom™ 1.6 GHz (N270)		–
	–	Celeron® 1.2 GHz (SU2300, 45 nm Dual Core, 1 MB L2 Cache, FSB 800 MHz) Core™2 Duo 2.26 GHz (SP9300, 45 nm, 64-bit, 6 MB L2 Cache, FSB 1066 MHz)		
RAM	1 or 2 GB DDR2	1 or 2 GB DDR2 * 1 to 8 GB DDR3 **		1 to 8 GB DDR3
Graphic controller Intel®	SCH US15W with integrated graphic controller	GMA 950 integrated in 945GSE * GMA X4500 integrated in GS45 **		GMA X4500 integrated in GS45
Graphic memory [1]	a minimum of 8 MB shared	a minimum of 8 MB shared * a minimum of 256 MB shared **		a minimum of 256 MB shared
Mass storage device	2 x Flash SSD (internal USB connections)	1 x Flash SSD (internal USB connection) * 2 x Flash SSD (internal USB connections) **		2 x Flash SSD (internal USB connections)
	–	Alternatively: 2.5" hard disk with a minimum of 120 GB (SATA) 2.5" automotive hard disk with a minimum of 40 GB (SATA) 2.5" industrial SSD (SATA, SMART)		
Interfaces	COM 1 (RS232) 1 x USB 2.0 *** integrated in front panel			
	2 x USB 2.0 *** 1 x PS/2 (keyboard/mouse)	5 x USB 2.0 ***		
Network	2 x Ethernet (10/100/1000MBit) RJ 45	3 x Ethernet (10/100/1000MBit) RJ 45		
Power adapter	24 V DC +/– 20 % (19 bis 29 V)			
Operating system	Windows® CE 6.0, Windows® 7 embedded, Windows® XP embedded or embedded Linux as a platform for terminal solutions based on Flash SSD Windows® 7 Professional, Windows® XP Professional or Linux as an open platform on hard disk			
Protection class	Front: IP 65			
Operating temperature	5 to +45 °C –20 to +55 °C ****			5 to +45 °C
Dimensions (W x H x D)	256 x 192 x 66 mm	353 x 261 x 64 mm	413 x 290 x 68 mm	553 x 355 x 68 mm
Installation depth	50 mm	50 mm	54 mm	54 mm
Installation recess [2]	240 x 176 mm	332 x 240 mm	392 x 269 mm	532 x 334 mm
Weight	1.9 kg	2.8 kg	4.1 kg	7.5 kg
Vibration resistance	DIN EN 60068-2-6			
Shock resistance	DIN EN 60068-2-27			
Humidity	10 to 85 % without condensation			

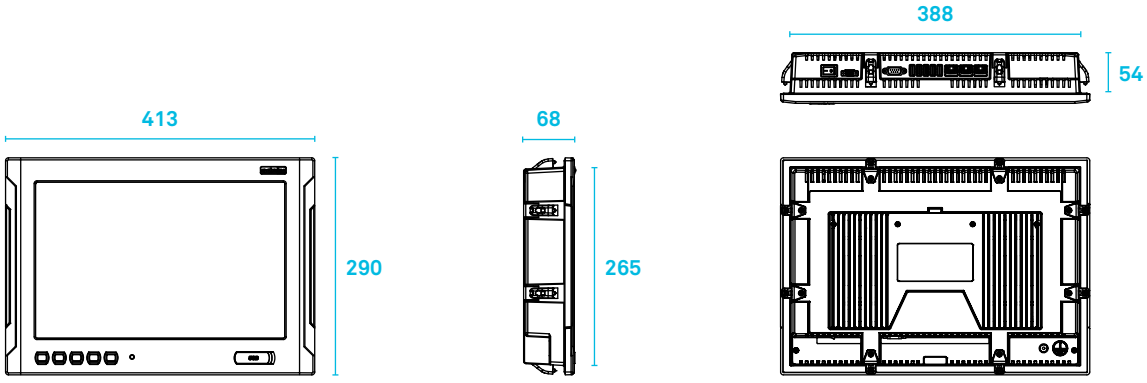
* Atom™ 1.6 GHz only ** Celeron® 1.2 GHz / Core™2 Duo 2.26 GHz only *** All external USB interfaces can be disabled by software and in High Current version with up to 1A **** with Flash SSD, automotive hard disk or 2.5" industrial SSD only
[1] Allocation depends on software driver [2] Tolerance +/– 1 mm



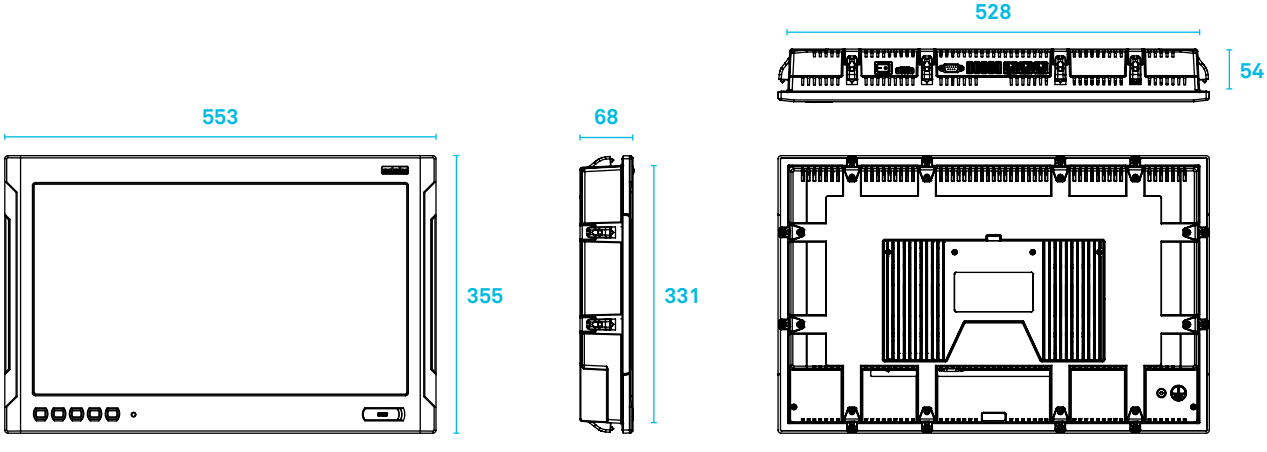
OPC7008



OPC7013



OPC7015



OPC7022

Product portfolio

Tablet PCs

IT Infrastructure

Terminals

Industrial PCs

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